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RESEARCH MEMORANDUM

PROPELLER SECTION AERODYNAMIC CHARACTERISTICS AS

DETERMINED BY MEASURING THE SECTION SURFACE PRESSURES

ON AN NACA 10-(3)(08)-03 PROPELLER UNDER OPERATING CONDITIONS

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NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
WASHINGTON
November 8, 1950

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SUMMARY

A wind-tunnel investigation has been made by the National Advisory Committee for Aeronautics to determine propeller section aerodynamic characteristics by measuring the surface pressure distribution on the airfoil sections of a rotating propeller. The pressures were measured at nine radial stations on an NACA 10-(3)(08)-03 design two-blade propeller.

The results of the investigation are presented herein and airfoil aerodynamic characteristics are presented over a Mach number range from approximately 0.20 to approximately 1.15. A range of angle of attack is covered from about -1° to 12° at relatively low values of section Mach number and from 0° to 4° in the transonic speed range.

The results are compared with two-dimensional-model data from wind-tunnel tests. An analysis of the comparisons shows that some refinement of present theory is needed to determine the induced flow at a propeller and that there are differences between data obtained on an operating propeller blade and that obtained on two-dimensional models in wind tunnels.

INTRODUCTION

The problem of the application of airfoil data to the design of efficient propellers and of the procurement of airfoil data for propeller design and performance prediction, particularly at high speeds, is well know to the propeller designer. The problem of the application of two-dimensional airfoil data to propeller design was solved for the incompressible case of light propeller loading by the introduction of the Goldstein factor as developed by Lock. This method of design continues to yield satisfactory results when applied to the design of propellers which have sections operating at subcritical speeds.

For conditions of operation far from the ideally loaded condition, however, the Goldstein theory is inapplicable and is not intended for use in the estimation of the induced flow at the propeller.

As described in reference 1 there are three-dimensional relieving effects present near the propeller tips at supercritical speeds. Reference 1 points out that the shocks formed at or near the blade tips are not normal to the stream and therefore cause less flow separation and shock loss than the normal shock found in two-dimensional flow. This phenomenon involves a change in the relation between lift and angle of attack of the airfoil sections near the tip which is independent of the induced-flow field.

In addition to the tip-relieving effects at high speeds, there is also a radial boundary-layer flow caused by centrifugal action on the boundary layer, a Mach number gradient along the propeller blades, and the influence of high blade solidity on the lifting line concept, all of which tend to alter the two-dimensional aerodynamic characteristics of the propeller sections.

To obtain propeller section data, which include the aforementioned effects, tests have been conducted in the Langley 16-foot high-speed tunnel. Propeller airfoil section data have been obtained over the operating range of a propeller by the measurement of the surface pressure distribution on the sections of an operating propeller. The results of the investigation are presented over a Mach number range from approximately 0.20 to approximately 1.15. A range of angle of attack is covered from about -1° to 12° at relatively low values of section Mach number and from 0° to 4° in the transonic speed range.

The airfoil-section data obtained give an insight into the nature of the differences between the characteristics of a section when working in two-dimensional and three-dimensional flow.

Some of the results presented herein have been presented in preliminary form in reference 2. The present results cover a wider range of section operation than those presented in reference 2 and have been more thoroughly analyzed. The data contained in the present paper include corrections to the section angles of attack caused by the twist of the propeller blade due to the operating loads and corrections to the nominal blade-angle settings. In addition, values of section-induced angles of attack calculated from Goldstein's theory and values of the section-chordwise-pressure forces are presented. Values of elemental thrust obtained from wake measurements which were made simultaneously with the surface pressure measurements are also included.

While the results of the present work provide some insight into the nature of the differences between propeller section data and

two-dimensional data, a better understanding of the problem requires extensive theoretical treatment which is beyond the scope of this paper.

SYMBOLS

The symbols used throughout this report, some of which are defined in figure 3, are as follows:

b blade chord, feet

c_c section chordwise pressure force coefficient

c_d section pressure drag coefficient

c_m section moment coefficient

$(c_m)_{b/4}$ section pitching-moment coefficient about quarter chord due to normal force

c_n section normal-force coefficient

$C_T{}'$ section thrust coefficient

$C_{T_p}{}'$ section thrust coefficient obtained by measuring section surface pressure

$C_{T_W}{}'$ section thrust coefficient obtained by slipstream measurements of total pressure in wake

c distance from section leading edge to any point on chord, feet

$\bar{c}$ distance from section leading edge to any point on chord about which moments are taken, feet

c_{l_d} design lift coefficient

c.p.   chordwise position of section center of pressure, percent chord

D propeller diameter, feet

F_c section chordwise pressure force (positive when directed toward the section trailing edge), pounds

F_n section normal force, pounds

G   Goldstein's induced-velocity correction factor for a finite number of blades

g   acceleration due to gravity $\left(32.2 \text{ ft/sec}^2\right)$

h   blade section maximum thickness, feet

J   advance ratio (V/nD)

K   gas constant $(53.3 \text{ ft-lb/lb/}^\circ\text{F})$

l/d section lift-drag ratio

M   tunnel air-stream Mach number, corrected to equivalent free airspeed

M_{LD} value of Mach number at lift divergence

M_{cr} critical Mach number

M_t helical tip Mach number $\left(M\sqrt{1 + \left(\frac{\pi}{J}\right)^2}\right)$

M_x helical section Mach number $\left(M\sqrt{1 + \left(\frac{\pi x}{J}\right)^2}\right)$

m   section moment, pound-feet

N   propeller rotational speed, rpm

n   propeller rotational speed, rps

P_{cr} critical pressure coefficient

P_x pressure coefficient at a radial station x $\left(\dfrac{p - p_0}{q_x}\right)$

p   pressure, pounds per square foot

p_m indicated pressure as read on manometer board (uncorrected for centrifugal pressure), pounds per square foot

p_0 free-stream static pressure, pounds per square foot

q_x resultant dynamic pressure at a radial station x, pounds per square foot $\left(\frac{1}{2}\rho W_0^2\right)$

R   propeller-tip radius, feet

r radius to a blade element, feet

r_1 radius to orifice in rotating shaft of pressure-transfer device, feet

$\overline{T}$ absolute mean temperature of air in propeller tubing, °F absolute

V tunnel air-stream velocity corrected to equivalent free air-speed, feet per second

W true resultant velocity, feet per second

W_0 resultant velocity at a radial station x, feet per second $\left(V\sqrt{1 + \left(\frac{\pi x}{J}\right)^2} \right)$

w_1 induced velocity, feet per second

x fraction of propeller-tip radius, (r/R)

y perpendicular distance from section chord line to any point on section surface, defined as being positive from chord to upper surface and negative to lower surface, feet

α_i induced angle of attack computed by Lock's method, degrees

α_x angle of attack of blade element at radial station x, corrected for induced flow and blade twist due to load, degrees, $(\beta + \Delta\beta - \phi)$

α_x' nominal angle of attack of blade element at radial station x, degrees $(\beta - \phi_0)$

β blade angle, degrees (uncorrected for twist due to load)

$\Delta\beta$ blade twisting angle due to operating loads, degrees

β_x blade angle, degrees $(\beta + \Delta\beta)$

ρ mass density of air in free stream, slugs per cubic foot

σ propeller solidity $(Bb/2\pi r)$

ϕ helix angle

ϕ_0 nominal helix angle $\left(\tan^{-1}(J/\pi x) \right)$

ω propeller rotational speed, radians per second

Subscripts:

l lower surface

u upper surface

APPARATUS

Basic equipment.— The tests were made with the NACA 2000-horsepower propeller dynamometer in the Langley 16-foot high-speed tunnel. A complete description of the dynamometer is contained in reference 3.

The pressure-transfer device used to transfer the pressures measured at the blade surface orifices from the rotating members of the test setup to the stationary manometers is shown schematically in figure 1 and is described in detail in reference 4.

Propeller blades.— The propeller blades are of solid duralumin construction and are designated the NACA 10-(3)(08)-03 propeller. The digits in the propeller designation describe the propeller diameter and the airfoil section at the design radius ($x = 0.70$) as follows: propeller diameter, 10 feet; section design lift coefficient, 0.3; section thickness chord ratio, 0.08; and solidity per blade, 0.03. The blades were made up of NACA 16-series airfoil sections throughout and were designed as a three-blade propeller to have the Betz loading for minimum induced-energy loss when operating at a blade angle of 45° at the design radius at an advance ratio of 2.1. The airfoil-section design characteristics are shown in table 1 for the blade stations where pressure measurements were made. It should be noted that throughout the present paper parentheses have been added to the airfoil designations to separate the airfoil-section design lift coefficient from the section thickness ratio. This addition of parentheses is contrary to the NACA method of designating the 16-series airfoils but the fractional values of design lift coefficient and thickness ratio involved in many instances in the present paper required the separation for clarity.

A description of the blades, together with the aerodynamic characteristics of the propeller, is contained in reference 3. The blades were tested as a two-blade propeller for the present tests, and blade-form characteristic curves are presented in figure 2.

Twenty-four pressure tubes were embedded in the surface of one of the blades; a resistance thermometer was embedded in the thrust face. Details of the blade construction, pressure tube and orifice installation,

and temperature measurements are described in reference 2. A schematic
diagram of the test setup is shown in figure 1.

TESTS

The·tests were made at nominal values of blade angle of 30° and 45°
at the 75-percent (45-inch) radius station. For most tests a constant
rotational speed was used and a range of advance ratio was covered by
changing the tunnel airspeed, which was varied from about 60 to 460 miles
per hour. At a blade angle of 45°, however, the dynamometer could not
deliver sufficient torque to cover the complete range of advance ratio
at the higher rotational speeds and for this reason high-speed data were
obtained by operating at constant high values of tunnel airspeed and
variable dynamometer rotational speeds.

When the tests were run as described, the section Mach number and
the section nominal angle of attack were varied simultaneously; the
nominal angle of attack was varied over a fairly large range and the
section Mach number was varied over a small range. Since the nominal
angle of attack is a function of advance ratio at constant blade angle,
a Mach number range was covered by running the tests over the same range
of advance ratio a number of times with different combinations of tunnel
airspeed and rotational speed. The Mach number range covered for the
outboard stations was from about 0.6 to 1.1, and for the inboard stations
from about 0.3 to 0.6. The nominal angle-of-attack range varied from
about -1° to 12° for low values of Mach number and from about 0° to 4°
for the higher values of Mach number.

REDUCTION OF DATA

Pressure Coefficient

The pressure coefficient for a pressure measured on the surface
of the propeller blade is defined as the difference between the measured
surface pressure and the free-stream static pressure, divided by the
resultant section dynamic pressure, so that

$$P_x = \frac{p - p_0}{q_x}$$

The pressure p at a point on the blade surface is the pressure
recorded on the manometer corrected for the centrifugal force acting on

the air column in the pressure tube due to the rotation of the blade,
so that

$$p = p_m e^{\frac{\omega^2}{2gkT}\left(r^2 - r_1{}^2\right)}$$

For the present installation r_1 was small compared with r and
was called zero with negligible effect on the resulting pressure coeffi-
cient.

The free-stream static pressure and the mass density of the air are
determined by the free-stream conditions immediately ahead of the pro-
peller but the resultant velocity and total pressure acting on a blade
section are determined jointly by the speed of advance and the propeller
rotational speed.

The coefficients defined herein are based on the resultant veloc-
ity W_0 (fig. 3). To be strictly analagous to two-dimensional flow the
coefficients should be based on the resultant velocity W. The ratio W/W_0,
however, is equal to $\cos \alpha_i$ and since α_i is less than $3.5°$ for all
conditions of the present tests the error involved by using the simplifi-
cation amounted to less than 1 percent in normal-force coefficient.

Normal-Force Coefficient

The normal-force coefficient of a section is defined as the normal
force acting on a section of unit span divided by the chord of the section
and the resultant section dynamic pressure:

$$c_n = \frac{F_n}{q_x b} = \int_0^{1.0} \left(P_{x_l} - P_{x_u}\right) d\frac{c}{b}$$

Moment Coefficient

The moment coefficient of a section is defined as follows:

$$c_m = \frac{m}{q_x b^2} = \frac{\bar{c}}{b} \int_0^{1.0} \left(P_{x_l} - P_{x_u}\right) d\frac{c}{b} - \int_0^{1.0} \left(P_{x_l} - P_{x_u}\right) \frac{c}{b} \, d\frac{c}{b}$$

A positive value of moment coefficient is defined as a moment tending
to increase the section angle of attack.

Chordwise-Pressure-Force Coefficient

The chordwise-pressure-force coefficient is defined as

$$c_c = \frac{F_c}{q_x b}$$

and is found by an integration of the pressure-distribution curve determined by plotting the measured surface pressure coefficient against the section thickness so that

$$c_c = \frac{h}{b}\left(\int_{h_l/h}^{h_u/h} P_x \, d\frac{y}{n}\right)_{0 \leq \frac{c}{b} < 0.5} - \frac{h}{b}\left(\int_{h_l/h}^{h_u/h} P_x \, d\frac{y}{n}\right)_{0.5 \leq \frac{c}{b} < 1.0}$$

Angle of Attack

The angle of attack of the propeller sections has been determined by the relation

$$\alpha_x = \alpha_x' + \Delta\beta - \alpha_i$$

where α_i, the induced angle of attack, was computed by use of Goldstein's correction for a finite number of blades, as applied by Lock, reference 5.

In the equation

$$w_1 = \frac{\sigma c_l W}{4G \sin \phi}$$

w_1 is assumed to be perpendicular to the true resultant velocity W as shown in figure 3. The induced angle α_i is obtained as

$$\alpha_i = \tan^{-1} \frac{\sigma c_l}{4G \sin \phi}$$

where $\phi = \phi_0 + \alpha_i$.

This equation was solved for the induced angle α_i by successive approximations by letting $c_l = c_n$ and by assuming $\phi = \phi_0$ for the first trial. The factor G was obtained from charts such as those reproduced in figure 2 of reference 6.

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When a propeller is operating, the blades will twist due to the action of the centrifugal forces and the aerodynamic load. The subject blades are relatively stiff and the changes in angle of attack due to any twisting of the blades are small but in some cases constitute a fairly large percentage of the section angle of attack. The centrifugal loads acting on the blades can be calculated with good accuracy and when the aerodynamic load and physical characteristics of the blades are known the section angle of twist $\Delta\beta$ can be computed with good accuracy. The twist of the blade sections has been computed and is included in the calculation of the section angles of attack for all conditions of operation tested in the present program.

An accurate determination of the blade-angle setting is also of importance for the determination of the section angle of attack. For the present tests the blade angle was set at nominal values of 30° and 45° at the $\frac{r}{R} = 0.75$ station. It was necessary to complete the tests at a given radial station before proceeding with the tests at the succeeding station and because of this the blade angle was changed at least once for each station tested. Errors in blade-angle setting became evident when the thrust loading along the blade radius computed from the surface-pressure measurements was compared with that obtained from wake measurements. The loading curve from the nine radial surface-pressure stations was wavy and the loading curve from a single wake-survey run was characteristically smooth. However, when the wake measurement loading curve was determined from nine separate runs as was the surface-pressure curve, the wake-pressure curve had the same waviness as the surface-pressure curve. Since the wake-pressure measurements agreed with the surface-pressure measurements, the waviness of the curves was laid to errors in the blade-angle setting.

In order to determine the correct blade-angle setting of each test run, propeller thrust was plotted against advance ratio and compared with the curve of propeller thrust against advance ratio from tests where the blade angle was known to be set accurately. The blade angle was adjusted to produce the same thrust at the value of advance ratio for maximum efficiency as obtained in the tests where the blade angle was known. The values of blade angle determined as described are recorded in tables 2 to 10 and are the values used throughout this paper in the determination of the section angle of attack. The nominal values of blade-angle setting appear in many of the figures and are used for identification purposes only.

Small errors in the blade-angle setting will not affect the values of normal-force coefficient but small errors will affect values of drag coefficient since the determination of the drag coefficient from tests such as the present tests is dependent upon an accurate knowledge of the section angle of attack. Consistent error in the angle of attack would not, however, affect any of the analyses contained herein.

Tunnel-Wall Interference

The data presented herein have been corrected to equivalent free air by the application of the Glauert tunnel-wall-interference correction (reference 7).

RESULTS AND DISCUSSION

Pressure Distribution

The values of pressure coefficient obtained from the measurement of surface pressures on the propeller sections are presented in tabular form in tables 2 to 10. Typical pressure-distribution curves are shown in figure 4 plotted from the data presented in tables 7(f), 7(h), and 7(k) for a range of normal-force coefficient in the subsonic and transonic speed ranges.

The pressure distributions obtained on the propeller blade sections closely resemble data obtained on airfoils in tunnel tests, and, as shown in reference 2, the low-speed pressure distributions obtained on the propeller sections agree well with the distribution obtained from theoretical calculation.

At values of Mach number near the critical value for the propeller sections (between $M = 0.70$ and $M = 0.80$) the point of minimum pressure tends to move toward the section trailing edge with increasing Mach number. When the Mach number is increased to values above the critical value, a sharp pressure rise occurs on the section; this rise indicates that a shock wave has formed on the surface. (See fig. 4(b).) An inspection of figure 4 as a whole shows that the shock wave tends to move toward the leading edge of the section with increases in angle of attack and toward the trailing edge with increases in Mach number.

At speeds above the section critical speed, a region of supersonic flow forms on the airfoil surface. The supersonic region begins with a sonic boundary upstream and terminates in a shock at its downstream boundary. When the speed is increased above the critical speed, the sonic boundary moves rapidly toward the leading edge and begins to stabilize at the point where the airfoil curvature becomes relatively large; simultaneously, the shock location moves rearward and, at Mach numbers near unity and above, remains very close to the section trailing edge (figure 4(c)).

The foregoing discussion illustrates that, in general, the distributions of pressure over the propeller section qualitatively resemble those obtained in tests of two-dimensional models. On the outboard

sections, however, there are differences that are not apparent from an over-all inspection of the pressure distributions. The differences are apparent, however, from an inspection of the values of normal-force coefficients and critical Mach numbers obtained, and are discussed subsequently.

Section Critical Mach Number

The critical Mach number of most of the propeller sections tested has been determined by plotting the values of minimum pressure coefficient obtained at each test condition versus the section resultant Mach number at constant values of section angle of attack. The value of section Mach number at which the minimum pressure coefficient attained a value corresponding to a value of local Mach number equal to 1.0 was read from the plots and is defined as the section critical Mach number. The values of section critical Mach number are plotted against section normal-force coefficient in figure 5(a). The values of section normal-force coefficient are the values obtained for a given angle of attack at the section critical Mach number.

A comparison between the values of critical Mach number obtained in the propeller tests and values of theoretical critical Mach number from reference 8 is shown in figure 5(b) for two propeller stations at the two blade-angle settings tested. The values of lift coefficient against which the theoretical values of critical Mach number are plotted in reference 8 have been increased by the factor $\dfrac{1}{\sqrt{1 - M^2}}$ in figure 5(b) of the present paper.

For the inboard station $(x = 0.70)$ shown in figure 5(b) the agreement between the experimentally determined curves and the theoretical curve is good except that for the experimental curves the range of normal-force coefficient over which relatively high values of critical Mach number are maintained is about 60 percent greater than the range for the theoretical curve. The extension of the flat portion of the curves is caused by the pressures on the lower surface of the propeller section and is probably caused by the lack of a pressure tube near the leading edge of the section. The tube nearest the leading edge over the lower surface was 3.75 percent of the chord length from the leading edge, while the closest tube on the upper surface was 2.5 percent chord from the leading edge. Because of the agreement with the theoretical curve for the portion of the curves determined by the upper surface pressures, the values of critical Mach number as determined from the propeller tests are believed to be accurate for positive values of angle of attack of the sections.

For the outboard station (x = 0.95) the percentage increase in the
range of normal-force coefficient covered by the flat high-level portion
of the experimental curves is approximately the same as for the x = 0.70
station. At the x = 0.95 station, however, the experimental curves are
shifted to lower values of normal-force coefficient. The differences
between the experimental and theoretical values for the outboard station
indicate that the pressure distribution and, consequently, the aerody-
namic characteristics of the outboard sections are different from two-
dimensional data since two-dimensional data agree with theory as shown
in reference 9. Further evidence of the differences between two-
dimensional data and the propeller data will be shown in a discussion
of the normal-force coefficients.

An interesting point illustrated by figure 5 is the tendency for
the values of critical Mach number to level off and, in some cases,
increase at high values of normal-force coefficient in the range above
the main break in the curves. This phenomenon which is found in wing
data when high narrow pressure peaks occur on the leading edge of the
airfoil sections is caused by the breakdown of the pressure peaks when
the angle of attack is increased. The breakdown of the leading-edge
peaks occurs simultaneously with and may be associated with a separation
of the flow at the trailing edge of the section as indicated in figure 6.

Figure 6 is a plot of the data which is typical of the subsonic
pressure distributions obtained during the tests and shows the variation
of the minimum peak pressure coefficient, trailing-edge pressure coef-
ficient, normal-force coefficient, and the section Mach number with
angle of attack. (Also, see fig. 4(a).) As the angle of attack is
increased, the trailing-edge pressures indicate that a separation of
the boundary layer has occurred at a value of angle of attack of
about 7° and that the separation becomes greater with further increases
in angle. The trailing-edge separation in turn affects the flow over
the entire section and reduces the leading-edge pressure peaks. The
reduced suction peaks at the leading edge and the increased suction at
the trailing edge (upper surface) tend to compensate each other so that
the normal force continues to increase with increasing angle of attack.

Aerodynamic Coefficients

The aerodynamic coefficients as obtained by integration of the
pressure distribution on the propeller airfoil sections are presented
in tabular form in tables 2 to 10. Values of normal-force coefficient
are comparable to values of lift coefficient for angles of attack up
to about 4°. For angles as high as 10°, the difference is believed to
be within the experimental accuracy of the data. Values of chordwise-
pressure-force coefficient, however, are not comparable to values of

pressure drag coefficient since the contribution of the relatively large
normal-force vector to the drag vector constitutes a large percentage of
the drag value. (See fig. 3.)

The data in tables 2 to 10 are presented for each test run, during
which section angle of attack and section Mach number varied simulta-
neously. In order to determine the variation of the aerodynamic coeffi-
cients with Mach number and angle of attack it is necessary to plot the
data against a parameter such as advance ratio. A typical plot of the
aerodynamic coefficients as determined by the pressure distribution is
shown in figure 7 where the data of table 7 have been plotted. From
plots such as those shown in figure 7, cross plots can be made to obtain
the variation of the aerodynamic coefficients with angle of attack or
Mach number.

Normal force.- The variation of normal-force coefficient with angle
of attack and section Mach number is shown in figure 8 in the form of
normal-force carpets for each station at each blade angle tested. The
values of critical Mach number shown in figure 5(a) have also been
included in figure 8 as dashed lines.

A comparison of the propeller test data with two-dimensional wind-
tunnel data for the same airfoil sections is shown in figure 9. The
tunnel data were obtained by cross-plotting the data of reference 9 which,
for these comparisons, have been corrected for tunnel-wall interference
by the method described in reference 10. In figure 9(a) the data are
compared as plots of normal-force coefficient against angle of attack
for several values of Mach number for each radial station. Comparison
with two-dimensional data shows the effect of the radial position of
the sections on the lift-curve slope.

For the sections inboard of the $x = 0.70$ station the lift-curve
slopes for the $\beta_{0.75R} = 45°$ case agree well with the slopes of the
two-dimensional data. For sections outboard of the $x = 0.70$ station,
however, the slopes of the curves for the propeller data become less
than the slopes of the two-dimensional data. This effect increases as
the tip sections of the propeller are approached.

On the inboard sections, however, where the lift-curve slopes agree
fairly well, there are differences between the two-dimensional data and
the propeller data in the values of lift coefficient for given values of
angle of attack. The differences in the data for the inboard sections
appear to vary with Mach number and are evident as a shift in the angle
of attack for zero lift. Lock's equation

$$\alpha_1 = \tan^{-1} \frac{\sigma c_l}{4G \sin \phi}$$

shows that for zero lift coefficient the computed value of the induced angle is zero. It therefore appears that the differences between the propeller data and the two-dimensional data are partly due to changes in the propeller-section aerodynamic characteristics from those characteristics of two-dimensional data. For the furthermost inboard station (x = 0.30) much of the change may be traced to the effect of the blade spinner juncture on the section characteristics, but for the other stations the differences are probably caused by the effects of the Mach number gradient along the blade radius, the effects of the outboard flow of the boundary layer on the blade caused by centrifugal action, three-dimensional relieving effects near the blade tips as described in reference 1, and the influence of high blade solidity on the lifting-line concept.

Further evidence of the differences between propeller section data and two-dimensional data are shown in figure 9(b) where normal-force coefficient has been plotted against Mach number for several values of angle of attack for the two blade-angle settings investigated. Tunnel data have been plotted in figure 9(b) as was done in figure 9(a). In the case of the data obtained at $\beta_{0.75R} = 45^\circ$, the effects of the tip relief are clearly shown in the increase of the value of Mach number for lift divergence over that of the tunnel data for the tip sections. Outboard of the 0.7R station the difference becomes greater as the tip of the blade is approached and, in addition, the value of normal-force coefficient at lift divergence becomes considerably less for positive angles of attack and becomes greater for negative angles of attack. For the 0.6R station the value of Mach number for lift divergence is in close agreement with the values for the tunnel data although the value of normal-force coefficient at lift divergence is considerably lower than the values for the tunnel data.

In the $\beta_{0.75R} = 30^\circ$ case, the point of lift divergence is practically indefinable and in some cases the value of Mach number for the point which might be called the lift-divergence point is lower than the value of the critical Mach number. (See fig. 8(d).) Furthermore, in the lower Mach number range in many cases the value of normal-force coefficient increases with decreasing Mach number. The reason for the variances in the general shape of the curves with the familiar patterns of airfoil data is not definitely understood but contributing factors include a steeper Mach number gradient, greater radial boundary-layer flow, and a greater variation of section angle of attack along the span of the blade than for the $\beta_{0.75R} = 45^\circ$ case. These factors become evident with an inspection of figure 3 where in order to maintain a given section Mach number and angle of attack when the blade angle is reduced it is necessary to increase the rotational speed.

The change in the angle-of-attack variation along the span due to a blade-angle change can be seen in figure 10. Figure 10 presents the

variation of section nominal angle of attack along the blade radius
together with the blade loading from the pressure measurements for two
values of advance ratio. The values of advance ratio have been chosen
so that the value of nominal angle of attack for both blade-angle cases
is the same at the x = 0.70 station. Changes in the spanwise angle-of-
attack variation will cause changes in the blade loading as indicated in
figure 10 where it is shown that when compared to the ideal Betz loading
the loading for the $\beta_{0.75R} = 30^O$ case is further from the ideal than
the $\beta_{0.75R} = 45^O$ case. In general, the agreement between the experi-
mentally determined propeller loading and the ideal loading is good for
the outboard stations (outboard of the x = 0.60 station) for the low-
speed conditions shown in figure 10, but for the inboard stations the
data obtained at a blade angle of 30° show considerable deviation from
the ideal loading. At the higher value of advance ratio the bumps in
the loading curves are due to the small values involved in obtain-

ing $\dfrac{bc_n}{(bc_n)_{0.7R}}$. Since the Lock-Goldstein calculation of the induced

angle of attack is based on the assumption of an ideal Betz loading,
the differences between the $\beta_{0.75R} = 30^O$ data and the $\beta_{0.75R} = 45^O$ data
may be partly attributed to the absence of the ideal loading for the
$\beta_{0.75R} = 30^O$ case. The calculated values of the induced angles of
attack for the $\beta_{0.75R} = 45^O$ case, however, should be in close agreement
with those actually obtained in the tests due to the nearly ideal loading.
The difference between the $\beta_{0.75R} = 45^O$ data and the two-dimensional data
may therefore be attributed partly to limitations of existing theory for
the tip sections and partly to inherent differences between the aero-
dynamic characteristics of a propeller section and a two-dimensional
airfoil section.

Differences in the section aerodynamic characteristics are especially
evident at high section speeds. As an illustration, figures 11 and 12
have been prepared. In figure 11 the critical Mach number and the value
of Mach number for lift divergence from the propeller pressure data have
been compared with the theoretical critical Mach number and the lift-
divergence Mach number from two-dimensional data for two propeller sta-
tions. As might be expected, the agreement between the curve of critical
Mach number for the propeller and the two-dimensional theoretical data is
good for moderate values of normal-force coefficient between approximately
0.30 and 0.55 for the x = 0.70 station, but the difference between the
curves of critical Mach number and Mach number for lift divergence is a
little greater for the two-dimensional data than for the propeller data.
For the x = 0.95 station, where the effects of the propeller operation are
more pronounced, the agreement between the critical Mach number curves is
not so good as for the x = 0.70 station; the delay in Mach number for
lift divergence above the critical Mach number is considerably increased
over that for the x = 0.70 station and over that of the two-dimensional

data. It therefore appears from figure 11 that the aerodynamic charac-
teristics of the tip section are less like the two-dimensional data than
are those characteristic of the stations farther inboard. The effect
caused by the radial position of the section in the blade is shown in
figure 12 where the difference between the section critical Mach number
and the Mach number for lift divergence is plotted against radial station.
From figure 12 it is evident that, as the tip portion of the blade is
approached, the spread between the values of helical Mach number where
the local value of Mach number reaches unity and the value for lift diver-
gence becomes greater. This phenomenon occurs in spite of the fact that,
as the tip portions of the blade are approached, the sections become
thinner and have lower design lift coefficients, (see fig. 2). The
results shown in figures 11 and 12 indicate that either the induced flow
at the propeller has not been accurately determined or that the aerody-
namic characteristics of propeller sections are not the same as those of
two-dimensional airfoils. It is highly probable that both conditions
exist simultaneously for the propeller.

Figure 12 has been determined from the data presented in figure 8.
If the data points were plotted in figure 12 it would be noted that the
points are scattered. The scattering of the points is probably due to
errors in the determination of the section critical Mach numbers; these
errors were unavoidable because of the lack of pressure tubes near the
leading edge of the sections. The curves of figure 12 have been
faired conservatively, however, and if the trends shown are in error
they show less divergence for the tip sections than actually occurs.

Section moment.- Section moment coefficients measured about the
quarter-chord point are presented in figure 13 as plots of moment coef-
ficient against normal-force coefficient for a range of section Mach
number. The moment coefficients presented are a result of the action
of the section normal force and do not include the effects of the section
chordwise force which were found to be negligible.

Figure 13 shows that no abrupt changes in section pitching moment
occur as the Mach number is increased through the transonic range. The
values are negative (therefore, the blade angle tends to reduce) over
the entire range of operation and tend to become more negative as the
section Mach number is increased. Only on the inboard sections where
the sections are relatively thick does the moment coefficient approach
a value of zero and tend to become slightly positive. In general, given
values of moment coefficient determined from the propeller tests occur
at higher values of Mach number than shown by two-dimensional data. For
example, in figure 13(b) for the $x = 0.75$ station the average value of
moment coefficient for $M_x = 0.70$ is about the same as that given in
reference 9 for $M = 0.30$ and the value for $M_x = 1.0$ in figure 13(b)
is about the same as that for $M = 0.70$ in reference 9. This shift
to higher Mach numbers for the moment coefficients is to be expected
since it is in agreement with the results found for the normal-force
data.

Section pressure drag.- The pressure drag coefficients for the propeller sections are presented in figure 14 plotted against section Mach number at constant values of section angle of attack. From figure 3 the pressure drag coefficient is obtained as

$$c_d = c_n \sin \alpha_x + c_c \cos \alpha_x$$

From results of wing tests the values of pressure drag coefficient at zero angle of attack should be close to zero in the subcritical speed range and in no case should they be negative as shown. The reason for the negative values in the critical speed range is believed to be largely due to the lack of precision in the determination of the induced angle, since the values of drag obtained from the pressure distributions are dependent upon an accurate knowledge of the angle of attack.

The values of drag coefficient presented in figure 14, in some instances, appear to be too large at the higher angles of attack and to decrease too rapidly with increasing Mach number in the lower Mach number range (for example, see fig. 14(b) x = 0.70). The results may have been altered if more tubes had been installed near the leading edge of the blade sections. If the suction pressures on the blade sections at high angles of attack had been known and accounted for, the values of c_c might have been more negative and the drag coefficients smaller.

At supercritical values of Mach number, the pressure peaks tend to be reduced or wiped out entirely with the result that the negative portion of the thicknesswise pressure distributions is reduced and the values of drag are larger. Therefore, the values of pressure drag coefficient are believed to be inherently more accurate in the supercritical range than at the lower speeds. The rate of increase of drag coefficient with increasing Mach number is believed to be reliable although the absolute values are admittedly not precise.

Part of the phenomenon may also be caused by the effects of a Mach number gradient along the blade, centrifugal boundary-layer flow, three-dimensional relieving effects, and the influence of the blade solidity on the lifting-line concept since the odd shape of the curves is much the same as that shown in the values of normal-force coefficient in the lower Mach number range of operation. As pointed out previously, no complete explanation of the phenomenon is evident at present.

When compared with values of drag coefficient from wind-tunnel tests, the values of Mach number for drag divergence for the inboard sections agree well with the values obtained from the tests of two-dimensional models, but for the outboard sections, the values obtained from the propeller tests are higher than the values obtained from wind-tunnel tests. The increase in the value of Mach number for drag divergence is in

agreement with the results obtained for lift-divergence Mach number from the analysis of the normal-force data.

In order to obtain realistic values of drag coefficient over the entire speed range the propeller data in the supercritical speed range may be combined with two-dimensional data. This combination can be accomplished by shifting the entire propeller drag curve in the positive direction until the minimum value of drag coefficient is equal to a reasonable value of friction drag. This friction-drag value can be assumed. The two-dimensional data can be connected to the propeller data by fairing a suitable curve. The value of minimum drag coefficient will occur in most cases at a value of Mach number which is very close to the value of Mach number for drag divergence.

Drag coefficients have been obtained as described above for the x = 0.80 station by assuming a value of friction drag coefficient of 0.004 and are presented in figure 15. Results of drop tests (references 11, 12, and 13) have been plotted on the curve for 0° angle of attack. The magnitude of the drag coefficients obtained from the propeller tests is in line with the results of the model tests at sonic velocities when it is considered that the propeller section is a cambered section and is carrying a lift load $\left(c_n = 0.09\right)$ and the three-dimensional models are of zero camber. The point of drag divergence for the propeller data occurs at a value of Mach number that is between the values for drag divergence for the three-dimensional drop-test models and the two-dimensional models.

Lift-drag ratio.- By the use of the drag data presented in figure 15, values of section lift-drag ratio have been computed and are presented in figure 16 as plots against section Mach number for several values of normal-force coefficient. At a section Mach number of 1.0, a maximum value of lift-drag ratio of about 6.0 was obtained at a value of normal-force coefficient of 0.4. Because of the power limitation of the dynamometer, higher values of normal-force coefficient could not be attained in this speed range. The trend of the curves, however, indicates that the maximum value of l/d at Mach number 1.0 would probably be attained at a value of normal-force coefficient in excess of 0.40. In the subsonic range of Mach number the maximum value of lift-drag ratio occurs at a value of normal-force coefficient between 0.65 and 0.70; this value is in good agreement with values obtained for two-dimensional model data. The value of Mach number for maximum l/d, however, is higher than that value obtained in tunnel tests because values of Mach number for lift divergence and drag divergence are higher for the propeller data. At values of Mach number in the low-supersonic range the values of l/d determined from the propeller test agree well with theoretical values as shown in reference 14.

Elemental thrust.- Values of elemental-thrust coefficient have been computed from the section aerodynamic characteristics obtained

from the surface pressure measurements by the equation

$$C_{T_P}' = \frac{Bb}{D}\left(\frac{J^2 + \bar{\pi}\bar{x}^2}{4}\right)\left(c_n \cos \beta_x - c_c \sin \beta_x\right)$$

These results are compared in figure 17 with values of elemental-thrust coefficient $\left(C_{T_W}'\right)$ obtained from propeller slipstream pressure measurements. The agreement between the two methods of obtaining elemental thrust is good at low speeds where skin friction is relatively small except at the inboard station where the flow over the propeller spinner may have affected the wake-pressure measurements.

Values of elemental-thrust coefficient have been computed by conventional strip-theory methods as described in reference 2 by using the two-dimensional section data of reference 9 for three values of advance ratio. The computed points are plotted on the curves of figure 17(b) for a blade angle of 30° at 1350 rpm. These conditions of operation represent the highest speed range of section operation for which tunnel data are available at present. The agreement between the three methods of obtaining values of section thrust is excellent for all except the two most inboard sections where the thrust coefficient obtained from the wake measurements appears to be low. This discrepancy may be due to an outboard shift of the wake caused by the dynamometer body.

As a check on the feasibility of using the data obtained from the present tests as design data, or to predict the thrust grading curve of a propeller, the elemental thrust of the sections has been computed for operating conditions other than those at which the data were obtained. A rotational speed of 1600 rpm was chosen and the data presented in figure 8 were used in place of the usual two-dimensional airfoil data in the conventional strip-theory method. The normal-force coefficients obtained from the tests at a blade angle of 45° at the 0.75R station were used in the strip-theory method for computing the $\beta_{0.75R} = 30^\circ$ case, and the $\beta_{0.75R} = 30^\circ$ data were used to compute the thrust for the case of operation at $\beta_{0.75R} = 45^\circ$. Although both blade-angle cases were computed for a rotational speed of 1600 rpm, the data used were not necessarily obtained at 1600 rpm. The values of thrust coefficient computed in this way are shown as squared points in figures 17(c) and 17(h) for a rotational speed of 1600 rpm for $\beta_{0.75R} = 30^\circ$ and $\beta_{0.75R} = 45^\circ$. The agreement of the computed points with the experimental data is excellent. These comparisons show that although there are differences between the airfoil data obtained on the operating propeller and two-dimensional airfoil data, the calculation of propeller thrust is relatively insensitive to the differences. The

preceding analysis, indicates however, that at higher speeds a more
extensive theory is needed and also a different type of airfoil data
than that which is conventionally used in propeller analysis.

CONCLUSIONS

The results of the investigation to determine the aerodynamic
characteristics of the airfoil sections of an operating propeller
blade lead to the general conclusion that a further refinement of
existing theory is needed to determine the induced-flow field at the
propeller more accurately, especially for high section speeds or
nonoptimum loadings.

Analysis also leads to the conclusion that there are differences
between propeller section aerodynamic characteristics obtained from an
operating propeller blade and those determined from wind-tunnel tests
on two-dimensional models.

The results of the tests also led to the following specific
conclusions:

1. The distribution of the pressures over the propeller sections
qualitatively resembles those obtained in two-dimensional tests of wing
sections in the same angle of attack and Mach number range.

2. The experimentally determined critical speeds of the propeller
sections agree reasonably well with theoretically determined values
for an inboard station but for sections near the blade tip the lack of
agreement indicates that section characteristics are not like the
characteristics of two-dimensional sections.

3. Comparison of the propeller data with two-dimensional data
shows that the slope of the lift curves for the propeller sections
decreases progressively toward the propeller tip. The variation of
angle of attack for zero lift with Mach number for the propeller sections
also differs from the variation for two-dimensional tests. This
difference does not appear to be affected by the radial position of the
blade sections.

4. The value of Mach number for lift divergence agrees with the
values from two-dimensional data for the inboard sections. On the
outboard sections the values from the propeller tests are higher with
a maximum difference for the section nearest the tip. The values of
lift coefficient at lift divergence for given angles of attack are
lower than values from two-dimensional tests for positive angles of attack
and greater for negative angles of attack. The point of lift divergence
is indefinable for the $\beta_{0.75R} = 30^\circ$ case.

5. In general the data obtained at $\beta_{0.75R} = 45°$ agree better with two-dimensional data than that obtained at $\beta_{0.75R} = 30°$. The differences between the propeller data may be attributed in part to the lack of the ideal loading for the $\beta_{0.75R} = 30°$ case and in part to a greater Mach number gradient and radial boundary-layer flow for the $\beta_{0.75R} = 30°$ case.

6. The differences in Mach number increment between the value of critical Mach number and the value of Mach number for lift divergence between the two-dimensional data and the propeller data obtained at $\beta_{0.75R} = 45°$ suggest that the aerodynamic characteristics of the propeller sections are different from those of two-dimensional sections.

7. The pitching-moment coefficient of these particular propeller sections about the quarter-chord point is negative (therefore, the angle of attack tends to reduce) over the speed range covered and shows no abrupt changes with Mach number in the transonic speed range. In general, given values of moment coefficient determined from the propeller data occurred at higher values of Mach number than are shown by two-dimensional data.

8. The values of drag coefficient obtained are not precise but the shape of the curves of drag against Mach number is believed to be reliable in the critical and supercritical range of Mach number. The values of Mach number for drag divergence show the same shift to higher values for outboard sections when compared with two-dimensional model data as do the values of Mach number for lift divergence.

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TABLE I

SECTION DESIGN CHARACTERISTICS FOR THE

NACA 10-(3)(08)-03 PROPELLER BLADE

Radial station, $x = \dfrac{r}{R}$	Section chord, b (ft)	Design lift coefficient, c_{l_d}	Thickness ratio, h/b	Section twist, $\beta - \beta_{0.75R}$ (deg)
[a]0.30	0.931	0.143	0.130	23.45
.45	.829	.228	.1085 ·	13.93
.60	· .727	.282	.0905	6.25
.70	.657	.297	.0800	1.98
.75	.623	.300	.0745	0
.80	.589	.295	.0695 ·	-1.82
.85	.555	.282	.0643	· -3.52
.90	.520	.252 ·	.0577	-5.12
.95	.473	.203	.0476	-6.67

[a]Data for x = 0.30 station presented for $\beta_{0.75R} = 30^\circ$ only.

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(1.43)(13.00) PROPELLER BLADE SECTION (x = 0.30)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.32°.

J	0.696	0.754	0.847	0.944	1.041	1.160	1.251	1.353	1.472	1.417	1.303	1.207	1.112	1.000	0.898	0.795	0.740	0.617
M_x	.192	.195	.212	.225	.239	.253	.270	.284	.305	.294	.278	.262	.251	.236	.215	.202	.197	.181
α_T'	16.32	16.81	10.83	7.71	4.92	1.85	-.25	-3.34	-4.61	-3.61	-1.36	-.76	3.07	6.06	9.17	12.63	14.64	19.57
$\Delta\beta$	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
α_1	6.07	4.63	3.55	2.63	1.87	1.18	.79	.30	-.06	.06	.46	.87	1.38	2.00	2.88	3.85	4.88	6.44
c_n	1.3661	1.0512	.8323	.6366	.4645	.3033	.2073	.0789	-.0177	.0154	.1201	.2248	.3482	.4905	.6839	.8827	1.1045	1.3877
c_m	-.0021	-.0143	-.0049	.0002	-.0003	.0104	-.0294	-.0482	-.0630	-.0609	-.0486	-.0265	-.0082	-.0037	-.0046	-.0176	-.0151	.0040
c_c	-.1305	-.0771	-.0494	-.0344	-.0186	-.0183	-.0116	-.0002	-.0010	-.0079	.0022	-.0064	-.0241	-.0310	-.0435	-.0514	-.0875	-.1299

c/b	Pressure coefficient, P																	
0.000	1.009	1.010	1.011	1.013	1.014	1.016	1.018	1.021	1.024	1.022	1.020	1.017	1.016	1.013	1.012	1.010	1.010	1.008
a.025	-4.230	-3.044	-2.070	-1.500	-.975	-.665	-.299	.257	.375	.251	.111	-.252	-.702	-1.219	-1.675	-2.204	-3.835	-4.275
.050	-4.054	-2.916	-1.906	-1.404	-.977	-.602	-.346	-.094	.128	.070	-.157	-.391	-.690	-1.076	-1.511	-2.088	-3.710	-4.264
.100	a-3.297	a-2.111	a-1.572	a-1.203	a-.907	-.546	-.375	a-.287	a-.125	a-.149	a-.321	a-.496	a-.661	a-.914	a-1.224	-1.384	-1.781	-3.877
.200	-1.781	-1.257	-1.063	-.908	-.744	a-.501	-.441	-.323	-.225	-.270	-.385	-.483	-.597	-.757	-.898	-1.084	-1.182	-1.436
.300	-1.014	-.957	-.812	-.730	-.609	-.483	-.419	-.323	-.248	-.289	-.378	-.452	-.539	-.653	-.763	-.888	-.938	-1.009
.400	-.822	-.789	-.692	-.621	-.538	a-.465	-.405	-.336	-.284	-.320	-.391	-.437	-.489	-.579	-.648	-.738	-.767	-.844
a.500	-.694	-.665	-.612	-.544	-.505	-.447	-.412	-.363	-.320	-.358	-.408	-.462	-.462	-.532	-.572	-.644	-.650	-.736
.600	-.605	-.572	-.527	-.492	-.466	-.427	-.426	-.395	-.378	-.401	-.433	-.445	-.448	-.494	-.503	-.554	-.571	a-.653
.700	a-.542	-.512	-.418	-.423	-.403	-.395	-.395	-.395	-.396	-.413	-.426	-.437	-.437	-.429	-.420	-.461	-.523	-.555
.800	-.477	-.416	-.286	-.254	-.233	-.252	-.302	-.317	-.337	-.351	-.336	-.301	-.263	-.249	-.243	-.346	-.425	-.472
.900	-.401	-.308	a-.137	-.055	0	-.029	-.099	-.126	-.178	-.171	-.157	-.088	-.030	-.025	-.076	-.231	-.328	-.403
.950	-.350	-.224	-.057	.014	.107	.147	.097	.044	-.019	-.028	.010	.079	.120	.079	.006	-.138	-.230	-.348

c/b																		
.0375	.978	.919	.841	.658	.466	.210	-.048	-.323	-.625	-.543	-.267	.003	.279	a.351	a.547	.876	.955	1.018
.075	.812	.714	.655	a.458	a.301	a.085	a-.113	a-.311	a-.524	-.475	a-.269	a-.087	a.120	.210	.422	.600	.723	.866
.150	.569	.462	.392	.252	.126	-.012	-.157	-.284	-.402	-.383	-.267	-.148	-.003	.145	.318	.450	.527	.646
.250	.403	.305	.249	.143	.036	-.060	-.164	a-.263	-.325	-.320	-.254	-.164	-.055	.051	.183	.300	.357	.480
.350	.264	a.193	.140	.044	-.036	-.108	a-.176	-.251	a-.298	-.301	-.254	-.194	-.106	-.016	.089	.174	.234	.328
.450	.161	.089	.063	-.016	a-.081	-.133	-.194	-.244	-.284	-.283	-.254	-.202	-.130	-.071	.017	.093	.149	.218
.550	.059	.004	-.013	-.075	-.126	-.156	-.201	-.231	-.272	-.270	-.246	-.209	-.164	-.118	-.046	0	.052	.066
.650	-.017	-.079	-.090	-.134	-.162	-.188	-.215	-.224	-.237	-.252	-.246	-.225	-.189	-.166	-.097	-.069	-.034	-.002
.750	a-.076	-.128	-.122	-.155	-.170	-.172	-.178	-.179	-.166	-.178	-.198	-.194	-.180	-.175	-.139	-.127	-.096	-.100
.850	-.120	-.139	a-.116	-.115	-.116	-.100	-.077	-.047	-.025	-.041	-.074	-.104	-.114	-.137	-.118	-.115	-.107	-.154
.925	-.145	-.116	-.090	-.085	-.072	-.003	.047	.098	.122	.114	.079	.018	-.030	-.081	-.076	-.104	-.096	-.209
.975	-.158	-.079	-.024	-.016	-.018	.099	.177	.228	.223	.226	.210	.139	.070	-.005	-.015	-.046	-.083	-.265
a1.000	-.152	-.129	-.042	.052	.186	.393	.365	.302	.275	.286	.278	.259	.262	.186	.105	.032	.064	-.266

a Faired value.

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(1.43)(13.00) PROPELLER BLADE SECTION (x = 0.30) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.32°.

	J	0.697	0.778	0.836	0.930	0.995	1.099	1.164	1.255	1.353	1.442	1.413	1.312	1.212	1.129	1.050	0.980	0.886	0.817	0.738
	M_x	.237	.239	.257	.270	.276	.294	.308	.324	.343	.357	.311	.334	.314	.302	.288	.278	.264	.250	.238
	α_x'	16.28	13.22	11.19	8.14	6.21	3.40	1.78	-.32	-8.39	-4.05	-3.53	-1.55	.65	2.63	4.69	6.66	9.47	11.86	14.71
	$\Delta\beta$	.03	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.03	.02	.03	.03
	α_1	5.66	4.24	3.60	2.80	2.30	1.56	1.17	.71	.28	.06	.02	.40	.82	1.26	1.71	2.26	3.01	3.81	5.02
	c_n	1.2653	.9708	.8398	.6738	.5639	.3923	.2985	.1852	.0759	.0161	.0064	.1050	.2115	.3193	.4243	.5515	.7142	.8837	1.1386
	c_m	-.0120	-.0191	-.0110	-.0059	-.0017	.0002	-.0112	-.0326	-.0453	-.0605	-.0588	-.0248	-.0325	-.0094	-.0007	-.0027	-.0017	-.0170	-.0120
	c_o	-.0273	-.0780	-.0491	-.0338	-.0253	-.0205	-.0213	-.0073	-.0098	-.0079	-.0055	-.0004	.0097	-.0155	-.0202	-.0247	-.0365	-.0464	-.0936

	x/b	Pressure coefficient, P																		
Upper surface	0.000	1.014	1.014	1.017	1.018	1.019	1.022	1.024	1.027	1.030	1.032	1.031	1.028	1.025	1.023	1.021	1.020	1.018	1.016	1.014
	a.025	-4.030	-2.588	-2.095	-1.637	-1.275	-.875	-.638	-.187	0	.245	.215	.050	.102	-.634	-.969	-1.224	-1.662	-2.024	-3.884
	.050	-4.050	-2.588	-1.954	-1.590	-1.209	-.829	-.596	-.301	-.104	.090	.061	-.144	-.380	-.629	-.934	-1.205	-1.574	-1.953	-3.716
	.100	-2.486	-1.259	-1.416	-1.226	-.964	-.706	-.556	-.359	-.199	-.060	-.093	-.244	-.419	-.587	-.799	-.964	-1.210	-1.470	-1.909
	.200	a-1.536	a-.813	-1.078	-.941	-.759	-.608	-.533	-.406	-.295	-.219	-.242	-.339	-.440	-.533	-.651	-.735	-.875	-1.151	-1.316
	.300	-1.014	-.580	-.877	-.818	-.677	-.553	-.498	-.417	-.389	-.268	-.288	-.374	-.451	-.528	-.625	-.679	-.792	-.872	-.980
	.400	-.839	-.410	-.733	-.708	a-.643	-.492	-.476	-.406	-.338	-.299	-.319	-.379	-.440	-.480	-.560	-.589	-.663	-.725	-.776
	.500	a-.730	a-.298	a-.636	a-.649	-.616	a-.461	a-.464	a-.415	a-.368	a-.343	a-.356	-.396	a-.434	a-.470	-.526	a-.589	a-.609	a-.628	a-.667
	.600	-.625	-.214	-.564	-.577	-.487	-.443	-.452	-.432	-.391	-.303	-.392	-.418	-.446	-.467	-.489	-.493	-.549	-.561	-.616
	.700	-.588	-.138	-.468	-.490	-.416	-.387	-.417	-.427	-.391	-.392	-.401	-.423	-.435	-.431	-.430	-.410	-.435	-.447	-.546
	.800	-.477	-.044	-.323	-.315	-.234	-.228	-.273	-.307	-.295	-.326	-.333	-.380	-.305	-.277	-.263	-.250	-.261	-.324	-.457
	.900	-.385	.058	-.195	-.162	-.023	.017	-.037	-.111	-.113	-.157	-.156	-.135	-.088	-.032	-.016	-.022	-.109	-.201	-.333
	.950	-.329	.159	-.098	-.074	.045	.140	.142	.078	.069	.011	-.003	.025	.088	.129	.112	.067	-.010	-.095	-.245

	.0375	.995	a1.081	.834	.655	.577	.379	.177	-.085	-.291	-.568	-.527	-.264	0	.213	.416	.608	.763	.879	.951
	.075	.800	1.043	.617	.444	.386	.226	.055	-.154	-.276	-.458	-.460	-.294	-.110	.051	.215	.372	.506	.658	.748
Lower surface	.150	.559	.822	.393	.232	.195	.078	-.048	-.175	-.267	-.388	-.374	-.264	-.137	-.032	.080	.213	.323	.437	.526
	.250	.392	.670	.239	.100	.092	.011	-.089	-.175	-.228	-.317	-.310	-.239	-.148	-.074	.003	.109	.201	.290	.358
	.350	.263	.551	.127	.014	.011	-.044	-.130	-.195	-.237	-.304	-.301	-.254	-.182	-.122	-.068	.026	.095	.175	.234
	.450	.151	.448	.047	-.052	-.044	-.087	-.158	-.206	-.233	-.282	-.274	-.244	-.193	-.151	-.107	-.029	.020	.094	.136
	.550	.069	.372	-.025	-.111	-.099	-.124	-.181	-.217	-.233	-.273	-.265	-.244	-.198	-.175	-.146	-.084	-.041	.012	.039
	.650	-.042	.278	-.098	-.177	-.146	-.160	-.204	-.222	-.218	-.245	-.247	-.244	-.214	-.206	-.185	-.133	-.102	-.063	-.050
	.750	-.108	.245	-.139	-.191	-.160	-.154	-.181	-.195	-.180	-.175	-.179	-.195	-.193	-.193	-.198	-.154	-.147	-.119	-.111
	.850	-.126	.228	-.130	-.184	-.118	-.106	-.112	-.080	-.050	-.034	-.048	-.075	-.088	-.122	-.146	-.112	-.125	-.103	-.121
	.925	-.145	.245	-.114	-.147	-.078	-.032	-.014	.062	.098	.121	.115	.085	.039	-.027	-.081	-.071	-.094	-.087	-.121
	.975	-.145	.278	-.050	-.089	-.009	.048	.085	.193	.236	.231	.228	.215	.160	.075	.003	-.008	-.026	-.030	-.102
	a1.000	0	.364	.095	.084	.187	.323	.427	.476	.402	.316	.315	.318	.346	.368	.329	.218	.166	.096	.016

a Faired value.

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–(1.43)(13.00) PROPELLER BLADE SECTION (x = 0.30) — Continued

(c) N = 1600 rpm; $\beta_{0.75R}$ = 29.32°.

J	0.824	0.888	0.954	1.034	1.098	1.180	1.251	1.343	1.414	1.354	1.304	1.215	1.135	1.067	0.995	0.919	0.856
M_x	.300	.314	.328	.342	.353	.371	.383	.402	.417	.403	.394	.376	.363	.347	.333	.317	.308
$a_x{}'$	11.61	9.47	7.42	5.10	3.40	1.39	-.25	-2.16	-3.53	-2.39	-1.36	.58	2.36	4.21	6.21	8.51	10.61
$\Delta\beta$	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04
a_1	3.79	3.19	2.60	1.94	1.52	1.08	.72	.33	0	.21	.47	.85	1.25	1.64	2.19	2.75	3.33
c_n	.8815	.7571	.6316	.4814	.3823	.2787	.1879	.0870	-.0010	.0561	.1236	.2208	.3188	.4083	.5364	.6583	.7804
c_m	-.0212	-.0125	-.0022	.0015	-.0025	-.0187	-.0338	-.0477	-.0625	-.0547	-.0425	-.0337	-.0106	.0011	-.0007	-.0054	-.0099
c_c	-.0446	-.0405	-.0371	-.0269	-.0206	-.0117	-.0069	-.0109	-.0026	-.0060	-.0082	-.0015	-.0145	-.0195	-.0271	-.0316	-.0382

	c/b	Pressure coefficient, P																
Upper surface	0.000	1.023	1.025	1.027	1.030	1.032	1.035	1.037	1.041	1.045	1.042	1.040	1.036	1.033	1.031	1.028	1.026	1.024
	a.025	-2.119	-1.874	-1.533	-1.173	-.893	-.470	-.203	-.035	.276	.091	-.091	-.234	-.641	-.936	-1.238	-1.503	-1.830
	.050	-2.054	-1.702	-1.386	-1.067	-.818	-.529	-.337	-.125	.050	-.048	-.174	-.382	-.625	-.873	-1.135	-1.453	-1.742
	.100	-1.484	-1.276	-1.081	a-.888	a-.719	a-.530	-.390	-.224	-.099	-.186	-.277	-.426	-.595	-.758	-.941	-1.143	-1.331
	.200	a-1.094	a-.967	a-.856	-.714	a-.636	a-.521	a-.436	a-.328	a-.251	a-.317	a-.371	-.454	a-.558	a-.669	a-.780	a-.911	a-1.016
	.300	-.895	-.807	-.730	-.648	-.581	-.504	-.441	-.358	-.306	-.351	-.391	-.462	-.539	-.610	-.683	-.770	-.847
	.400	-.741	-.674	-.626	-.561	-.518	-.479	-.429	-.365	-.336	-.369	-.398	-.446	-.500	-.550	-.599	-.663	-.715
	.500	-.647	-.590	-.559	-.478	-.493	-.474	-.438	-.392	-.371	-.397	-.421	-.467	-.491	-.512	-.549	-.594	-.624
	.600	-.558	-.519	-.502	-.428	-.465	-.462	-.444	-.419	-.412	-.436	-.446	-.479	-.500	-.486	-.499	-.524	-.550
	.700	-.458	-.420	-.420	-.404	-.412	-.434	-.437	-.430	-.442	-.450	-.442	-.438	-.435	-.430	-.424	-.438	-.454
	.800	-.346	-.266	-.244	-.227	-.246	-.288	-.305	-.313	-.346	-.344	-.324	-.306	-.283	-.259	-.245	-.262	-.299
	.900	-.233	-.128	-.048	.011	.004	-.053	-.092	-.118	-.162	-.147	-.121	-.081	-.025	-.001	-.011	-.074	-.158
	.950	-.129	-.033	.025	.088	.134	.125	.096	.066	.004	.015	.047	.090	.131	.114	.068	.010	-.049
Lower surface	.0375	.867	.796	.666	.508	.345	.112	-.073	-.302	-.538	-.407	-.251	-.013	.200	.373	.550	.694	.805
	.075	.637	.608	a.427	a.279	a.144	a-.033	a-.135	a-.300	a-.476	-.386	-.280	-.118	.045	.188	.326	.460	.561
	.150	.420	.365	.253	.150	.045	-.081	-.177	-.281	-.389	-.334	-.266	-.145	-.037	.059	.167	.283	.361
	.250	.273	.232	.149	.064	-.013	-.115	-.177	-.253	-.326	-.292	-.243	-.158	-.085	-.010	.073	.150	.224
	.350	.160	.121	.055	-.007	-.072	-.152	-.205	-.256	-.316	-.295	-.255	-.190	-.137	-.075	-.002	.064	.139
	.450	.077	.055	-.006	-.060	-.116	-.181	-.220	-.253	-.296	-.281	-.255	-.206	-.163	-.112	-.061	-.005	.042
	.550	.001	-.011	-.063	-.103	-.152	-.198	-.224	-.253	-.286	-.274	-.258	-.213	-.188	-.153	-.106	-.064	-.026
	.650	-.081	-.083	-.125	-.156	-.188	-.222	-.239	-.253	-.269	-.271	-.258	-.230	-.215	-.200	-.161	-.128	-.112
	.750	-.129	-.116	-.146	-.160	-.179	-.206	-.201	-.192	-.195	-.207	-.210	-.206	-.201	-.200	-.170	-.155	-.140
	.850	-.117	-.099	-.110	-.113	-.121	-.103	-.089	-.061	-.046	-.069	-.078	-.093	-.124	-.140	-.131	a-.148	-.134
	.925	-.104	-.077	-.084	-.074	-.053	.001	.043	.092	.110	.093	.070	.035	-.033	-.075	-.062	-.102	-.112
	.975	-.029	-.005	-.006	.011	.036	.129	.182	.222	.223	.222	.210	.170	.071	.017	-.007	-.016	-.026
	a1.000	.075	.158	.157	.207	.359	.397	.335	.317	.326	.342	.303	.269	.297	.309	.187	.147	.148

a Faired value.

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(1.43)(13.00) PROPELLER BLADE SECTION (x = 0.30) — Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.32°.

J	1.026	1.091	1.157	1.210	1.262	1.324	1.394	1.351	1.302	1.244	1.178	1.110	1.055
M_x	.428	.443	.457	.472	.485	.499	.516	.506	.493	.476	.460	.445	.435
a_x'	5.35	3.60	1.95	.69	-.47	-1.78	-3.17	-2.32	-1.33	-.07	1.43	3.10	4.53
$\Delta\beta$	.05	.05	.05	.05	.05	.05	.04	.05	.05	.05	.05	.05	.05
a_1	2.12	1.64	1.28	.95	.68	.35	.02	.17	.41	.71	1.08	1.52	1.87
c_n	.5251	.4118	.3284	.2451	.1770	.0926	.0058	.0453	.1087	.1845	.2778	.3847	.4657
c_m	-.0027	-.0067	-.0138	-.0211	-.0251	-.0378	-.0460	-.0447	-.0373	-.0282	-.0210	-.0152	-.0051
c_c	-.0278	-.0224	-.0179	-.0165	-.0081	-.0092	-.0133	-.0101	-.0023	-.0113	-.0092	-.0155	-.0224
c/b	Pressure coefficient, P												
Upper surface													
0.000	1.047	1.050	1.054	1.057	1.060	1.064	1.068	1.065	1.062	1.058	1.054	1.051	1.049
a.025	-.119	-.972	-.736	-.546	-.330	-.148	.042	.050	0	-.223	-.474	-.755	-1.020
.050	-1.069	-.889	-.687	-.509	-.363	-.192	-.033	-.066	-.158	-.311	-.505	-.736	-.952
.100	-.903	-.751	-.599	-.477	-.371	-.238	-.120	-.186	-.277	-.386	-.528	-.686	-.828
a.200	-.800	-.655	-.577	-.489	-.405	-.328	-.266	-.322	-.381	-.450	-.552	-.626	-.745
.300	-.689	a-.598	-.554	-.501	-.456	-.391	-.332	-.372	-.417	-.462	-.534	-.597	-.659
a.400	-.603	-.562	a-.534	-.477	-.446	-.398	-.359	-.391	-.422	-.452	-.505	a-.590	-.584
a.500	-.552	-.535	-.511	-.473	-.452	-.424	-.403	-.421	-.440	-.462	-.514	-.587	-.549
.600	-.514	-.504	-.481	-.468	-.458	-.448	-.437	-.458	-.465	-.471	-.522	-.559	-.522
.700	-.430	-.438	-.436	-.445	-.448	-.448	-.451	-.468	-.460	-.449	-.458	-.443	-.437
.800	-.242	-.258	-.272	-.291	-.304	-.316	-.329	-.339	-.322	-.303	-.299	-.265	-.249
.900	-.002	.009	-.009	-.036	-.061	-.087	-.107	-.114	-.088	-.059	-.046	-.001	.007
.950	.083	.121	.140	.140	.126	.103	.092	.076	.097	.119	.118	.127	.097
Lower surface													
.0375	.496	.337	.185	.030	-.118	-.310	-.515	-.439	-.270	-.083	.080	.275	.422
.075	a.322	.163	.044	-.078	-.185	-.321	-.460	-.410	-.295	-.159	-.043	.109	.223
.150	.138	.037	-.044	-.129	-.205	-.296	-.384	-.362	-.282	-.188	-.110	.002	.094
.250	.058	-.018	-.080	-.146	a-.217	-.267	-.329	a-.315	a-.276	a-.207	a-.144	-.056	.017
.350	-.016	-.077	-.128	-.181	-.226	-.277	-.327	a-.307	-.272	-.216	-.177	-.105	a-.039
.450	-.060	-.113	-.153	-.195	-.232	-.272	-.311	-.303	-.270	-.224	-.199	-.137	-.093
.550	-.114	-.156	-.187	-.219	-.249	-.277	-.304	-.303	-.277	-.242	-.224	-.176	-.140
.650	-.165	-.195	-.216	-.237	-.260	-.274	-.291	-.296	-.280	-.259	-.249	-.215	-.190
.750	-.168	-.186	-.193	-.203	-.210	-.214	-.214	-.228	-.222	-.211	-.221	-.202	-.190
.850	-.121	-.123	-.111	-.098	-.095	-.082	-.070	-.086	-.092	-.096	-.123	-.128	-.130
.925	-.057	-.041	-.007	.023	.043	.074	.083	.072	.058	.035	-.004	-.036	-.059
.975	.017	.048	.103	.145	.165	a.215	.186	.187	.177	.161	.121	.062	.017
a1.000	.135	.227	.302	.351	.412	.297	.331	.327	.293	.340	.306	.231	.166

a Faired value.

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(1.43)(13.00) PROPELLER BLADE SECTION (x = 0.30) — Concluded

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.32°.

J	1.057	1.145	1.196	1.252	1.317	1.375	1.418	1.365	1.346	1.288	1.214	1.165	1.095	1.055
M_x	.472	.494	.506	.520	.537	.551	.568	.550	.546	.528	.511	.498	.477	.468
α_x'	4.49	2.23	1.01	−.26	−1.64	−2.80	−3.62	−2.61	−2.23	−1.04	.59	1.74	3.49	4.54
$\Delta\beta$	.07	.07	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.07	.07
α_1	1.84	1.31	1.02	.69	.27	.01	−.16	−.04	.13	.43	.82	1.10	1.52	1.84
c_n	.4593	.3345	.2627	.1802	.0702	.0032	−.0423	−.0096	.0334	.1129	.2121	.2815	.3833	.4593
c_m	−.0004	−.0069	−.0148	−.0194	−.0323	−.0358	−.0424	−.0404	−.0365	−.0278	−.0168	−.0023	.0003	−.0022
c_0	−.0214	−.0215	−.0178	−.0140	−.0135	−.0120	−.0114	−.0089	−.0079	−.0028	−.0022	−.0057	−.0119	−.0168
c/b	Pressure coefficient, P													
Upper surface														
0.000	1.057	1.062	1.065	1.069	1.074	1.078	1.083	1.078	1.076	1.071	1.067	1.063	1.058	1.056
.025	−.918	−.789	−.601	−.377	−.165	.011	.113	.076	.068	.031	−.157	−.370	−.674	−.908
.050	−.918	−.800	−.581	−.406	−.226	−.070	.024	−.016	−.025	−.172	−.382	−.560	−.789	−.971
.100	−.864	−.645	−.517	−.392	−.257	−.150	−.078	−.158	−.198	−.309	−.467	−.588	−.752	−.867
a.200	−.764	−.620	−.519	−.437	−.335	−.291	−.230	−.306	−.331	−.406	−.518	−.563	−.693	−.766
.300	−.685	−.596	−.544	−.483	−.412	−.360	−.322	−.373	−.387	−.444	−.518	−.567	−.647	−.690
.400	−.607	−.546	−.510	−.472	−.419	−.384	−.355	−.395	−.405	−.442	−.495	−.526	−.582	−.612
a.500	−.551	−.519	−.507	−.476	−.437	−.421	−.390	−.451	−.429	−.464	−.498	−.510	−.556	−.569
.600	−.531	−.501	−.498	−.487	−.464	−.458	−.446	−.482	−.476	−.477	−.493	−.501	−.537	−.535
.700	−.446	−.457	−.465	−.465	−.456	−.460	−.458	−.476	−.468	−.461	−.462	−.459	−.459	−.448
.800	−.244	−.275	−.296	−.308	−.308	−.323	−.330	−.340	−.325	−.309	−.298	−.282	−.265	−.253
.900	.003	−.007	−.033	−.052	−.056	−.083	−.094	−.094	−.076	−.056	−.040	−.012	.002	.001
.950	.086	.129	.129	.124	.132	.113	.101	.093	.110	.122	.120	.131	.106	.080
Lower surface														
.0375	.424	.193	.044	−.117	−.293	−.484	−.611	−.506	−.410	−.224	−.011	.148	.311	.423
.075	.285	a.056	a−.070	a−.180	−.283	a−.441	−.501	−.484	−.410	−.276	−.126	−.002	.104	.216
.150	.091	−.047	−.134	−.216	−.285	−.380	−.430	−.393	−.350	−.265	−.162	−.074	.017	.088
.250	.010	−.094	−.163	−.222	−.276	−.340	−.375	−.352	−.317	−.256	−.181	−.113	−.045	.006
.350	−.062	−.146	−.202	−.247	−.287	−.340	−.367	−.352	−.323	−.274	−.213	−.163	−.108	−.061
.450	−.102	−.174	−.216	−.256	−.285	−.327	−.346	−.336	−.312	−.274	−.228	−.183	−.140	−.102
.550	−.150	−.206	−.239	−.269	−.291	−.321	−.336	−.334	−.312	−.283	−.246	−.214	−.187	−.154
.650	−.220	−.254	−.277	−.293	−.304	−.321	−.328	−.334	−.319	−.300	−.279	−.254	−.239	−.214
.750	−.204	−.219	−.234	−.243	−.235	−.241	−.241	−.256	−.246	−.241	−.235	−.222	−.223	−.208
.850	−.145	−.134	−.130	−.124	−.105	−.097	−.086	−.107	−.105	−.111	−.124	−.131	−.147	−.146
.925	−.069	−.035	−.006	.018	.046	.060	.070	.050	.051	.034	.007	−.012	−.053	−.072
.975	.003	.075	.117	.143	.162	.165	a.195	.159	.166	.150	.132	.092	.033	−.004
a1.000	.259	.327	.336	.374	.382	.371	.400	.401	.402	.383	.356	.327	.298	.228

a Faired value.

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.35°.

J	0.702	0.788	0.854	0.949	1.050	1.158	1.259	1.359	1.472	1.409	1.318	1.203	1.108	1.004	0.901	0.813	0.743
M_I	.258	.266	.275	.286	.297	.311	.324	.337	.356	.347	.336	.318	.304	.278	.276	.273	.262
$\alpha_r{'}$	16.87	14.15	12.14	9.41	6.68	3.96	1.59	-.59	-2.87	-1.62	.29	2.88	5.19	7.90	10.77	13.38	15.56
$\Delta\beta$	.08	.08	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.08
α_1	4.95	3.99	3.45	2.79	2.26	1.66	1.20	.65	.07	.07	.22	.69	1.08	1.50	2.32	2.90	3.65
c_n	1.3152	1.0841	.9512	.7873	.6484	.4852	.3581	.1970	.0219	.0683	.2069	.3160	.4337	.6610	.8069	.9976	1.2063
c_m	-.0740	-.0280	-.0017	-.0146	-.0108	-.0151	-.0323	-.0516	-.0674	-.0648	-.0587	-.0482	-.0364	-.0188	-.0150	-.0047	-.0202
c_0	-.0512	-.0655	-.0821	-.0560	-.0444	-.0449	-.0303	-.0180	.0061	-.0041	.0028	.0053	.0044	-.0348	-.0584	-.0796	-.1011

	c/b	Pressure coefficient, P																
Upper surface	0.000	1.017	1.018	1.019	1.020	1.022	1.025	1.027	1.029	1.032	1.030	1.029	1.026	1.024	1.020	1.019	1.019	1.017
	.025	-1.752	-2.064	-2.656	-2.171	-2.008	-1.821	-1.245	-.521	a.393	a.013	a-.088	-.159	-.212	-1.476	-2.331	-2.889	-3.019
	.050	a-1.943	-2.099	-2.609	-1.907	-1.356	-.972	-.689	-.344	a.010	-.051	a-.165	-.340	-.425	a-1.315	a-1.623	-2.699	-2.623
	.100	a-1.950	-1.995	-1.800	-1.207	-.922	-.681	-.483	a-.257	-.077	-.099	a-.254	-.437	-.627	a-.973	-1.174	-2.016	-2.142
	.200	a-1.897	a-1.642	a-1.019	a-.878	a-.782	a-.587	-.468	a-.233	-.170	a-.202	a-.331	a-.482	a-.642	a-.783	a-.934	a-1.060	a-1.624
	.300	-1.723	-1.224	-.830	-.748	-.655	-.532	-.441	-.334	-.246	-.276	-.372	-.485	-.576	-.693	-.805	-.878	-1.278
	.400	-1.395	-.889	-.717	-.660	-.601	-.510	-.441	-.363	-.295	-.319	-.392	-.480	-.536	-.625	-.709	-.741	-.967
	.500	-1.044	-.674	-.630	-.597	-.555	-.494	-.441	-.382	-.340	-.355	-.411	-.480	-.513	-.571	-.638	-.639	-.748
	.600	-.767	.536	-.543	-.522	-.501	-.466	-.431	-.396	-.367	-.377	-.416	-.463	-.473	-.517	-.553	-.544	-.599
	.700	-.570	-.424	-.443	-.440	-.435	-.421	-.406	-.396	-.385	-.391	-.416	-.437	-.422	-.443	-.463	-.435	-.478
	.800	-.381	-.299	-.269	-.270	-.275	-.290	-.302	-.334	-.336	-.337	-.357	-.330	-.292	-.280	-.282	-.278	-.337
	.900	-.176	-.132	-.047	-.036	-.038	-.064	-.090	-.137	-.202	-.183	-.155	-.106	-.053	-.036	-.035	-.101	-.174
	.950	-.082	-.042	.019	.046	.075	.085	.085	.011	-.041	-.055	-.044	.039	.066	.061	.009	-.013	-.082
Lower surface	.0375	.939	.889	a.816	.745	.591	.349	.141	-.190	-.559	-.430	-.111	.167	.429	a.652	a.738	a.843	a.881
	.075	.772	.709	.634	.536	.395	a.197	a.031	a-.181	a-.400	a-.354	-.155	a.075	a.268	a.445	.552	.669	.711
	.150	.582	.514	.440	.348	.229	.085	-.018	-.171	-.322	-.276	-.150	-.014	.128	.280	.378	.486	.534
	.250	.429	.368	.299	.222	.128	.018	-.055	-.171	-.278	-.249	-.155	-.063	.049	.164	.236	.329	.371
	.350	.319	.272	.205	.158	.063	-.026	-.075	-.166	-.246	-.219	-.155	-.085	-.002	.091	.158	.233	.272
	.450	.218	.181	.119	.077	.009	-.064	-.101	-.166	-.237	-.214	-.165	-.106	-.036	.036	.081	.152	.187
	.550	.144	.111	.065	.032	-.021	-.086	-.112	a-.162	-.211	-.192	a-.163	-.122	-.071	-.006	.028	.083	.108
	.650	.064	.035	-.001	-.018	-.079	-.113	-.127	-.157	-.202	-.192	-.165	-.144	-.105	-.061	-.043	.015	.024
	.750	-.016	-.021	-.048	-.055	-.097	-.119	-.117	a-.117	-.139	-.144	-.135	-.137	-.116	-.085	-.075	-.033	-.032
	.850	-.038	-.098	-.041	-.036	-.068	-.069	-.055	-.017	-.023	-.038	-.031	-.073	-.071	-.055	-.075	-.047	-.054
	.925	-.024	-.014	-.021	-.005	-.026	.018	.054	a.101	.097	.081	.082	.034	-.002	-.024	-.043	-.025	-.046
	.975	-.009	.098	.032	.058	.069	.091	.244	.218	.209	.196	.201	.129	.088	.067	.098	.001	-.012
	a1.000	.108	.160	.179	.229	.268	.321	.385	.312	.285	.299	.280	.190	.231	.259	.199	.170	.097

aFaired value.

NACA

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.35°.

J	0.688	0.762	0.846	0.934	1.005	1.103	1.178	1.270	1.362	1.467	1.410	1.326	1.219	1.144	1.051	0.965	0.891	0.807	0.739
M_x	.307	.319	.331	.345	.353	.370	.381	.393	.405	.425	.413	.400	.386	.374	.359	.346	.339	.331	.316
α_x'	17.33	14.95	12.38	9.84	7.88	5.32	3.47	1.34	-.65	-2.77	-1.63	.11	2.52	4.31	6.65	8.96	11.07	13.56	15.68
$\Delta\beta$	.10	.10	.10	.10	.10	.09	.09	.09	.09	.08	.09	.09	.09	.09	.10	.10	.10	.10	.10
α_1	5.18	4.29	3.65	3.16	2.50	1.90	1.43	.93	.53	.14	.27	.63	1.06	1.54	2.11	2.67	3.17	3.90	4.51
c_n	1.3697	1.1570	1.0065	.8880	.7114	.5505	.4201	.2752	.1587	.0418	.0830	.1884	.3129	.4479	.6043	.7541	.8818	1.0641	1.2079
c_m	-.0743	-.0252	.0011	-.0044	-.0157	-.0162	-.0247	-.0390	-.0573	-.0668	-.0683	-.0616	-.0385	-.0235	-.0218	-.0191	-.0113	-.0035	-.0222
c_c	-.0641	-.0903	-.0921	-.0793	-.0523	-.0358	-.0237	-.0059	-.0131	-.0057	-.0044	.0058	-.0077	-.0233	-.0367	-.0517	-.0737	-.0974	-.0982

c/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.024	1.026	1.028	1.030	1.032	1.035	1.037	1.039	1.042	1.046	1.044	1.041	1.037	1.036	1.033	1.030	1.029	1.028	1.025
.025	-2.082	-3.397	-3.159	-2.952	-2.034	-1.435	-.979	[a]-.304	[a]-.183	.081	.086	.050	[a]-.424	-.804	-1.278	-1.820	-2.932	-3.136	-3.381
.050	[a]-2.081	-2.505	-2.580	-2.258	-1.695	-1.282	-.947	[a]-.372	[a]-.198	[a].030	[a]-.015	-.108	[a]-.467	[a]-.742	[a]-1.108	[a]-1.408	-1.759	[a]-2.752	-2.808
.100	[a]-2.048	-1.735	[a]-1.884	-1.426	-1.052	-.801	-.603	-.419	-.227	-.070	-.128	-.276	-.480	-.659	-.888	-1.131	-1.362	-2.080	-1.914
.200	-1.885	-1.429	-1.172	-.981	-.839	-.661	-.550	-.426	-.294	-.195	-.239	-.343	-.484	-.585	-.722	-.881	-1.028	-1.286	-1.489
.300	-1.661	-1.165	-.856	-.775	-.716	-.601	-.516	-.437	-.343	-.260	-.305	-.377	-.480	-.554	-.657	-.755	-.837	-.929	-1.191
.400	-1.395	-.945	-.734	-.677	-.641	-.556	-.496	-.441	-.371	-.306	-.346	-.399	-.473	-.526	[a]-.610	-.670	-.719	-.780	-.963
.500	-1.102	-.755	-.628	-.603	-.588	-.524	-.481	-.448	-.395	-.345	-.380	-.420	-.473	-.502	-.567	-.606	-.624	-.657	-.772
.600	-.847	-.607	-.534	-.515	-.522	-.477	-.457	-.441	-.405	-.371	-.404	-.431	-.468	-.478	-.524	-.560	-.572	[a]-.547	-.622
.700	-.639	-.473	-.428	-.423	-.443	-.419	-.422	-.423	-.412	-.394	-.418	-.424	-.434	-.421	-.438	-.443	-.435	-.428	-.483
.800	-.448	-.339	-.262	-.242	-.275	-.270	-.287	-.315	-.346	-.342	-.359	-.356	-.322	-.284	-.279	-.267	-.264	-.275	-.350
.900	-.252	-.206	-.081	-.029	-.033	-.026	-.062	-.102	-.154	-.175	-.179	-.158	-.099	-.046	-.035	-.035	-.057	-.116	-.209
.950	-.145	-.129	-.018	.045	.060	.094	.101	.077	.004	-.037	-.050	-.018	.056	.083	.068	.051	.034	-.027	-.127
Lower surface																			
.0375	.952	.932	.873	.812	.673	.497	.298	.055	-.237	-.525	-.424	-.136	.144	.378	.577	.744	.832	.896	.947
.075	.776	.753	.707	[a].647	[a].455	[a].336	[a].158	-.020	-.234	-.407	-.356	-.169	.024	.204	.368	.518	.619	.692	.756
.150	.580	.538	.473	.409	.285	.173	.053	-.072	-.206	-.306	-.278	-.161	.099	.226	.341	.426	.494	.560	.600
.250	.414	.378	.323	.271	.166	.082	-.010	-.096	[a]-.194	[a]-.262	[a]-.248	-.165	[a]-.072	.028	.114	.214	.283	.335	.395
.350	.303	.271	.230	.188	.095	.029	-.046	-.117	-.188	-.227	-.223	-.165	[a]-.107	-.017	.059	.132	.189	.236	.286
.450	.202	.184	.142	.114	.038	-.022	-.077	-.140	-.188	-.230	-.223	-.176	[a]-.133	-.057	.003	.069	.113	.152	.193
.550	.121	.106	.079	.063	-.010	-.050	-.097	-.152	[a]-.185	-.217	-.206	-.174	[a]-.150	-.092	-.035	.019	.057	.082	.115
.650	.025	.019	.001	-.002	-.059	-.092	-.125	-.158	-.178	-.194	-.200	-.176	-.157	-.118	-.078	-.040	-.009	.007	.028
.750	-.044	-.032	-.038	-.039	-.081	-.105	-.125	[a]-.137	-.136	-.142	-.152	-.147	-.145	-.127	-.104	-.072	-.057	-.047	-.035
.850	-.075	-.057	-.038	-.020	-.051	-.062	-.069	-.065	-.031	[a]-.026	-.033	-.032	-.079	-.074	-.065	-.045	-.038	-.047	-.055
.925	-.075	-.047	-.029	-.002	-.010	.003	.021	.039	.081	.108	.093	.079	.028	.014	-.005	-.013	-.019	-.037	-.055
.975	-.065	-.032	.031	.063	.056	.078	.112	.137	.214	.222	.213	.198	.140	.115	.076	.032	.005	-.027	-.065
[a]1.000	0	.054	.233	.256	.181	.231	.285	.374	.302	.261	.301	.282	.310	.316	.237	.208	.084	.043	.032

[a] Faired value.

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(c) N = 1600 rpm; $\beta_{0.75R}$ = 29.35°.

J	0.830	0.888	0.966	1.038	1.107	1.183	1.259	1.346	1.424	1.478	1.382	1.302	1.223	1.134	1.066	1.007	0.939	0.852
M_T	.399	.404	.420	.434	.440	.456	.466	.480	.496	.502	.487	.475	.464	.446	.431	.423	.414	.401
α_T'	12.86	11.15	8.94	6.99	5.22	3.36	1.59	-.31	-1.93	-2.99	-1.11	.63	2.42	4.55	6.26	7.82	9.69	12.20
$\Delta\beta$	.14	.14	.14	.14	.14	.14	.13	.13	.13	.13	.13	.13	.13	.14	.14	.14	.14	.14
α_1	3.52	3.46	2.86	2.43	1.86	1.41	.98	.64	.23	.09	.42	.75	1.14	1.58	2.05	2.51	3.08	3.75
c_n	.9651	.9659	.8085	.6976	.5379	.4144	.2983	.1927	.0710	.0265	.1257	.2243	.3366	.4607	.5890	.7151	.8695	1.0413
c_m	-.0218	.0045	-.0164	-.0208	-.0210	-.0243	-.0381	-.0580	-.0669	-.0729	-.0685	-.0551	-.0322	-.0223	-.0234	-.0235	-.0161	-.0014
c_c	-.0758	-.0867	-.0672	-.0549	-.0330	-.0318	-.0177	-.0116	-.0052	-.0049	-.0002	-.0043	-.0108	-.0229	-.0339	-.0465	-.0811	-.0943

a/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.041	1.042	1.45	1.049	1.050	1.053	1.056	1.059	1.063	1.064	1.061	1.058	1.055	1.051	1.048	1.046	1.044	1.041
.025	-2.354	-2.262	-2.343	-1.728	-1.331	-.941	-.538	-.245	.013	.147	.109	-.106	-.450	-.863	-1.200	-1.584	-2.371	-2.532
.050	a-2.630	a-2.308	-1.847	-1.342	-1.023	-.758	-.478	-.240	-.059	.056	.017	-.221	-.476	-.769	-1.007	-1.272	-2.184	a-2.709
.100	-2.460	-2.077	-1.194	-.999	-.800	-.622	-.439	-.270	-.123	-.040	-.187	-.341	-.517	-.710	-.890	-1.069	-1.347	-2.304
.200	a-1.156	a-1.391	a-.927	a-.806	-.744	a-.565	-.445	-.339	a-.223	-.178	a-.296	a-.399	a-.523	a-.634	a-.753	a-.860	a-.931	a-1.175
.300	-.852	-.825	-.797	-.710	-.631	-.542	-.467	a-.386	a-.301	-.264	a-.347	-.422	-.506	-.590	-.667	-.735	-.791	-.840
.400	-.724	-.718	-.698	-.644	-.585	-.521	-.473	-.412	-.352	-.319	-.386	-.437	-.501	-.555	-.611	-.659	-.698	-.721
.500	-.653	-.639	-.632	-.594	-.555	-.510	-.478	-.439	-.392	-.365	-.406	-.454	-.487	-.531	-.574	-.601	-.617	-.643
.600	-.572	-.550	-.553	-.531	-.508	-.463	-.444	a-.446	-.414	-.396	-.436	-.460	-.473	-.507	-.543	-.562	-.567	-.559
.700	-.459	-.447	-.455	-.456	-.450	-.438	a-.404	-.444	-.427	-.418	-.442	-.452	-.436	-.442	-.451	-.446	-.436	-.460
.800	-.271	-.274	-.271	-.280	-.291	-.297	-.330	-.371	-.367	-.362	-.381	-.344	-.309	-.287	-.284	-.267	-.255	-.289
.900	-.064	-.075	-.031	-.028	-.037	-.050	-.110	-.162	-.173	-.180	-.177	-.140	-.072	-.039	-.089	-.022	-.024	-.077
.950	-.014	-.018	.051	.069	.084	.100	.071	.004	-.037	-.052	-.039	.023	.097	.092	.079	.068	.053	.014
Lower surface																		
.0375	.874	.829	.750	.625	.458	.298	.060	-.191	-.424	-.548	-.326	-.090	.175	.389	.547	.692	.790	.858
.075	.665	.613	.530	.411	.274	a.180	a-.018	a-.189	a-.352	-.456	-.303	-.148	.049	.211	.339	.473	.572	.643
.150	.474	.431	.353	.254	.144	.054	-.077	-.188	-.321	-.345	-.245	-.148	a-.015	.104	.200	.306	.388	.454
.250	.319	.290	.221	.148	.056	-.012	-.110	a-.186	-.303	-.305	-.232	-.162	a-.061	.024	.101	.184	.254	.306
.350	.227	.200	.149	.085	.008	-.044	-.127	-.186	-.276	-.266	-.217	-.170	-.084	-.020	.045	.119	.177	.215
.450	.142	.118	.077	.022	-.040	-.081	-.143	-.191	-.271	-.252	a-.214	-.181	-.112	-.073	-.010	.055	.104	.130
a.550	.074	.053	.031	.023	-.077	-.112	-.162	-.190	-.238	-.238	-.211	-.187	-.142	-.105	-.052	.009	.042	.053
.650	.001	-.009	-.039	-.072	-.112	-.135	-.168	-.183	-.195	-.209	-.197	-.191	-.151	-.125	-.091	-.048	-.014	-.014
.750	-.046	-.051	-.068	-.091	-.121	-.135	-.154	-.152	-.146	-.151	-.151	-.165	-.146	-.134	-.106	-.074	-.047	-.046
.850	-.046	-.044	-.048	-.060	-.076	-.078	-.080	-.045	-.034	-.021	-.039	-.063	-.084	-.086	-.066	-.045	-.030	-.042
.925	-.017	-.006	-.002	-.003	-.004	.025	.052	.085	.114	.123	.098	.064	.040	.003	.002	.010	.013	-.003
.975	-.003	.028	.038	.048	.060	.092	.137	.197	.223	.224	.211	.168	.108	.069	.052	.049	.043	.024
a1.000	.053	.084	.135	.114	.267	.305	.304	.327	.341	.295	.351	.343	.351	.297	.309	.228	.188	.159

a Faired value.

NACA

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN
NACA 16–(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(d) $N = 2000$ rpm; $\beta_{0.75R} = 29.35°$.

J	1.032	1.087	1.147	1.206	1.275	1.337	1.399	1.362	1.291	1.236	1.168	1.116	1.052
M_x	.538	.552	.561	.573	.587	.599	.613	.607	.587	.577	.564	.553	.544
$\alpha_x{}'$	7.15	5.73	4.24	2.81	1.24	−.13	−1.41	−.65	.88	2.12	3.71	5.00	6.63
$\Delta\beta$	.21	.21	.20	.20	.19	.19	.19	.19	.19	.20	.20	.21	.21
α_i	2.40	2.05	1.68	1.27	.88	.49	.16	.30	.69	1.06	1.51	1.83	2.22
c_n	.6876	.5918	.4899	.3732	.2605	.1479	.0480	.0918	.2057	.3141	.4417	.5312	.6364
c_m	−.0166	−.0205	−.0233	−.0280	−.0340	−.0415	−.0480	−.0480	−.0375	−.0350	−.0297	−.0240	−.0222
c_c	−.0466	−.0386	−.0326	−.0203	−.0106	−.0069	−.0073	−.0064	−.0065	−.0086	−.0197	−.0297	−.0369

	c/b	Pressure coefficient, P											
Upper surface	0.000	1.074	1.078	1.081	1.084	1.089	1.092	1.097	1.095	1.089	1.085	1.082	1.078	1.076
	.025	−1.589	−1.335	−1.037	−.680	−.388	−.132	.073	.063	−.140	−.375	−.735	−1.051	−1.237
	.050	a−1.302	−1.005	−.863	−.620	−.382	−.190	−.042	−.046	−.233	−.420	−.668	−.853	−1.088
	.100	−1.046	−.911	−.731	−.561	−.397	−.256	−.133	−.190	−.354	−.485	−.664	−.801	−.972
	.200	a−.867	−.835	−.668	−.544	−.444	−.345	−.253	−.301	−.433	−.527	−.618	−.717	−.827
	.300	−.757	−.702	−.630	−.554	−.472	−.402	−.337	−.369	−.455	−.515	−.595	−.660	−.732
	.400	−.682	−.645	−.599	−.544	−.485	−.435	−.386	−.409	−.473	−.517	−.572	−.619	−.668
	.500	−.619	−.599	−.571	−.536	−.496	−.460	−.426	−.443	−.490	−.517	−.556	−.586	−.616
	.600	−.549	−.541	−.529	−.511	−.485	−.466	−.447	−.458	−.488	−.504	−.536	−.541	−.552
	.700	−.454	−.457	−.464	−.465	−.454	−.451	−.447	−.450	−.460	−.463	−.464	−.462	−.464
	.800	−.258	−.269	−.288	−.310	−.312	−.322	−.335	−.330	−.319	−.315	−.295	−.280	−.268
	.900	−.004	−.001	−.018	−.044	−.053	−.073	−.095	−.084	−.062	−.052	−.028	−.009	−.008
	.950	.088	.095	.106	.109	.109	.104	.092	.095	.099	.102	.107	.099	.084
Lower surface	.0375	.628	.522	.365	.185	−.009	−.220	−.432	−.319	−.084	.102	.308	.439	.576
	.075	.415	.321	.191	.052	−.092	−.240	−.372	−.306	−.154	−.019	.139	.245	.358
	.150	.269	.195	.095	−.008	−.107	−.206	−.297	−.247	−.147	−.056	.062	.140	.228
	.250	.152	.091	.010	−.069	−.143	−.218	−.288	−.251	−.176	−.101	−.013	.051	.122
	.350	.092	.040	−.025	−.091	−.149	−.208	−.260	−.229	−.178	−.116	−.042	.009	.066
	.450	.028	−.015	−.071	−.124	−.171	−.218	−.260	−.237	−.198	−.144	−.086	−.044	.006
	.550	−.020	−.056	−.103	−.146	−.180	−.217	−.247	−.229	−.204	−.157	−.110	−.077	−.035
	.650	−.076	−.104	−.141	−.173	−.199	−.224	−.242	−.231	−.215	−.185	−.148	−.121	−.090
	.750	−.092	−.112	−.141	−.161	−.175	−.188	−.193	−.188	−.189	−.165	−.144	−.127	−.106
	.850	−.062	−.068	−.079	−.082	−.083	−.080	−.070	−.077	−.094	−.084	−.080	−.077	−.066
	.925	.002	.005	.006	.018	.028	.039	.056	.049	.022	.023	.012	.003	.002
	.975	.048	.060	.077	.101	.114	.128	.141	.137	.112	.109	.093	.070	.058
	a1.000	.145	.165	.205	.280	.218	.231	.381	.351	.263	.254	.245	.185	.166

a Faired value.

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2,28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(a) N = 2160 rpm; $\beta_{0.75R}$ = 29.35°.

J	1.089	1.142	1.191	1.246	1.317	1.379	1.335	1.271	1.228	1.167	1.106	1.052
M_x	.586	.598	.609	.621	.638	.652	.641	.628	.618	.603	.591	.580
a_x'	5.67	4.35	3.17	1.89	.31	-1.01	-.08	1.32	2.30	3.74	5.24	6.62
$\Delta\beta$	.25	.25	.25	.24	.24	.23	.24	.24	.24	.25	.25	.25
a_1	2.13	1.81	1.49	1.13	.64	.26	.46	.80	1.16	1.56	1.89	2.30
c_n	.6173	.5895	.4381	.3338	.1904	.0775	.1371	.2388	.3436	.4558	.5490	.6614
c_m	-.0232	-.0218	-.0305	-.0337	-.0387	-.0469	-.0451	-.0410	-.0385	-.0299	-.0216	-.0167
c_o	-.0348	-.0308	-.0221	-.0151	-.0043	-.0038	-.0025	-.0028	-.0073	-.0197	-.0305	-.0419
c/b	Pressure coefficient, P											
Upper surface												
0.000	1.088	1.092	1.096	1.099	1.105	1.111	1.107	1.102	1.098	1.093	1.090	1.086
.025	-1.251	-1.211	-.871	-.561	-.223	-.018	-.038	-.116	-.427	-.741	-1.106	-1.592
.050	a-1.082	a-.955	-.710	-.531	-.282	-.114	-.117	-.206	a.472	a-.708	a-.969	a-1.332
.100	-.937	-.793	-.643	-.481	-.298	-.170	-.240	-.369	-.516	-.678	-.841	-1.007
.200	a-.825	-.717	-.614	-.519	-.382	-.290	-.356	-.460	-.548	-.649	-.748	-.859
.300	-.746	-.677	-.614	-.538	-.447	-.373	-.415	-.486	-.557	-.626	-.706	-.774
.400	-.684	-.639	-.596	-.545	-.477	-.423	-.453	-.505	-.553	-.602	-.657	-.703
.500	-.635	-.610	-.581	-.549	-.504	-.465	-.487	-.523	-.553	-.586	-.621	-.649
.600	-.567	-.554	-.550	-.529	-.507	-.482	-.507	-.544	-.557	-.564	-.564	-.574
.700	-.472	-.475	-.487	-.483	-.480	-.471	-.475	-.485	-.483	-.478	-.477	-.473
.800	-.270	-.285	-.317	-.327	-.338	-.341	-.337	-.334	-.320	-.300	-.283	-.269
.900	-.002	-.008	-.035	-.050	-.070	-.083	-.077	-.065	-.046	-.022	-.009	-.008
.950	.098	.103	.112	.114	.109	.104	.101	.103	.109	.110	.092	.072
Lower surface												
.0375	.520	.395	.255	.080	-.170	-.369	-.250	-.056	.136	.310	.450	.570
.075	.318	.214	.103	-.030	-.210	-.343	a-.242	-.132	.010	.148	.254	.360
.150	.191	.115	.034	-.065	a-.221	a-.302	-.234	-.139	-.035	.068	.146	.227
.250	.095	.033	-.037	-.111	-.210	-.274	-.239	-.171	-.089	-.013	.048	.117
.350	.039	-.013	-.065	-.128	-.206	-.258	-.229	-.176	-.109	-.047	.002	.057
.450	-.021	-.064	-.106	-.155	-.223	-.266	-.240	-.196	-.140	-.091	-.050	-.003
.550	-.059	-.094	-.125	-.167	a-.237	a-.271	a-.253	-.201	-.156	-.116	-.086	-.046
.650	-.113	-.140	-.165	-.194	-.234	-.258	-.247	a-.212	-.189	-.157	-.137	-.105
.750	-.121	-.140	-.154	-.170	-.195	-.205	-.204	-.191	-.168	-.152	-.140	-.120
.850	-.073	-.080	-.079	-.079	-.084	-.079	-.085	-.089	-.082	-.082	-.084	-.075
.925	-.002	.005	.020	.030	.039	.053	.042	.031	.027	.014	-.004	-.010
.975	.061	.078	.105	.119	.130	.144	.138	.123	.116	.094	.066	.010
a1.000	.278	.307	.224	.354	.352	.400	.402	.354	.355	.281	.280	.207

a Faired value.

NACA

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 45.30°.

J	1.672	1.792	1.914	2.047	2.176	2.284	2.442	2.558	2.632	2.492	2.356	2.201	2.102	1.980	1.848	1.720
M_x	.383	.401	.417	.437	.458	.473	.499	.514	.528	.502	.486	.460	.447	.428	.410	.393
α_x'	9.44	7.50	5.68	3.86	2.24	.99	-.70	-1.84	-2.53	-1.20	.20	1.94	3.15	4.76	6.65	8.65
$\Delta\beta$	.08	.08	.08	.07	.07	.07	.07	.07	.06	.07	.07	.07	.07	.07	.08	.08
α_1	2.59	2.12	1.71	1.37	1.06	.84	.46	.23	.06	.32	.60	.96	1.19	1.51	1.91	2.28
c_n	.8395	.6943	.5643	.4577	.3552	.2827	.1568	.0773	.0204	.1094	.2022	.3218	.3977	.5018	.6276	.7431
c_m	-.0120	-.0132	-.0110	-.0152	-.0258	-.0425	-.0611	-.0670	-.0707	-.0638	-.0560	-.0363	-.0220	-.0167	-.0128	-.0119
c_c	-.0411	-.0484	-.0403	-.0343	-.0219	-.0137	-.0039	-.0003	.0011	-.0020	.0079	-.0110	-.0208	-.0293	-.0421	-.0549

c/b	Pressure coefficient, P															
Upper surface																
a0.000	1.037	1.041	1.045	1.049	1.054	1.057	1.064	1.067	1.071	1.064	1.060	1.054	1.051	1.047	1.043	1.040
.025	-1.877	-1.715	-1.535	-1.350	a-.659	a-.316	a.015	a.270	a.450	a.130	a.351	a-.341	a-.636	a-.919	a-1.389	-1.788
.050	-2.212	-1.409	-1.033	-.777	a-.575	-.368	-.158	-.007	.082	-.037	-.210	-.430	-.622	-.844	-1.144	-1.519
.100	-1.295	-1.117	-.855	-.670	a-.523	-.398	-.236	-.126	-.064	-.183	-.316	-.475	-.605	-.766	-.962	-1.155
.200	a-.909	a-.842	a-.717	-.607	-.471	-.401	-.312	a-.240	-.166	-.269	a-.373	-.467	-.553	a-.676	a-.781	a-.895
.300	-.767	-.717	-.634	-.551	-.493	-.440	-.354	-.303	-.277	-.338	-.400	-.478	-.525	-.600	-.683	-.768
.400	-.687	-.632	-.580	-.521	-.479	-.443	-.376	-.340	-.322	-.372	-.421	-.475	-.502	-.559	-.614	-.672
.500	-.581	-.569	-.537	-.491	-.468	-.448	-.395	-.372	-.362	-.400	-.431	-.467	-.484	-.521	-.563	-.605
.600	-.497	-.497	-.485	-.454	-.445	-.440	-.403	-.390	-.386	-.410	-.431	-.453	-.452	-.474	-.497	-.523
.700	-.393	-.404	-.415	-.399	-.408	-.422	-.393	-.390	-.395	-.410	-.418	-.422	-.404	-.410	-.422	-.426
.800	-.220	-.233	-.250	-.250	-.279	-.304	-.322	-.331	-.337	-.348	-.334	-.301	-.269	-.258	-.246	-.248
.900	-.011	.006	-.002	-.006	-.046	-.107	-.119	-.138	-.155	-.147	-.128	-.078	-.026	-.006	.001	-.017
.950	.054	.087	.100	.125	.121	.068	.039	.005	-.020	-.009	.020	.081	.113	.102	.087	.050
Lower surface																
.0375	a.789	a.700	.536	.387	.208	.031	-.187	-.388	-.517	-.317	-.100	.140	.305	.464	a.658	a.742
.075	.590	.487	.342	.223	.090	-.051	-.185	-.317	-.410	-.286	-.141	.025	.151	.280	.411	.518
.150	.404	.315	.199	.110	.013	-.077	-.170	-.293	-.315	-.233	-.143	-.025	.062	.153	.252	.343
.250	.262	.191	.097	.030	.043	-.112	-.175	-.237	-.286	-.221	-.159	-.072	-.008	.061	.139	.209
.350	.177	.120	.045	-.009	.069	-.120	-.163	-.211	-.251	-.204	-.154	-.095	-.043	-.013	.074	.132
.450	.104	.052	-.008	-.051	.100	-.140	-.173	-.209	-.242	-.209	-.169	-.120	-.076	-.038	.018	.061
.550	.046	.006	-.045	-.077	.115	-.145	-.168	-.198	-.220	-.194	-.169	-.129	-.097	-.064	-.022	.009
.650	-.015	-.048	-.091	-.113	.137	-.161	-.168	-.188	-.206	-.194	-.177	-.151	-.133	-.108	-.074	-.054
.750	-.050	-.069	-.104	-.113	.131	-.134	-.129	-.138	-.146	-.149	-.143	-.135	-.133	-.114	-.091	-.084
a.850	.029	.032	.071	-.050	.050	-.045	0	-.015	0	-.030	-.034	-.044	-.087	-.051	-.044	-.048
.925	.004	.009	.008	.024	.049	.082	.117	.129	.131	.113	.092	.061	.033	.013	.005	-.010
.975	.043	.052	.071	.095	.126	.186	.230	.237	.237	.225	.207	.151	.104	.076	.057	.032
a1.000	.204	.254	.294	.353	.402	.402	.381	.370	.380	.351	.331	.351	.342	.273	.253	.203

aFaired value.

NACA RM L50H03

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(g) N = 1350 rpm; $\beta_{0.75R}$ = 45.30°.

J	1.587	1.690	1.810	1.913	2.028	2.121	2.245	2.348	2.465	2.576	2.495	2.414	2.281	2.119	2.046	1.971	1.863	1.744	1.636
M_x	.440	.459	.479	.495	.519	.534	.555	.573	.597	.618	.601	.587	.561	.540	.518	.505	.488	.469	.449
α_x'	10.93	9.16	7.22	5.69	4.11	2.93	1.44	.28	-.91	-2.00	-1.22	-.40	1.03	2.21	3.87	4.87	6.43	8.27	10.06
$\Delta\beta$	.11	.10	.10	.10	.10	.09	.09	.09	.09	.08	.09	.09	.09	.09	.10	.10	.10	.10	.10
α_1	2.74	2.40	2.07	1.81	1.49	1.20	.90	.67	.33	.08	.24	.41	.71	.93	1.25	1.56	1.86	2.11	2.70
c_n	.8823	.7772	.6794	.5952	.4950	.4020	.3023	.2280	.1189	.0290	.0819	.1397	.2407	.3116	.4159	.5165	.6127	.6876	.8719
c_m	-.0013	-.0105	-.0135	-.0131	-.0147	-.0181	-.0302	-.0391	-.0482	-.0491	-.0531	-.0533	-.0454	-.0362	-.0308	-.0234	-.0145	-.0221	-.0045
c_c	-.0559	-.0394	-.0294	-.0411	-.0347	-.0309	-.0166	-.0090	-.0061	-.0059	-.0027	-.0052	-.0087	-.0056	-.0031	-.0203	-.0278	-.0236	-.0488

x/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.050	1.054	1.058	1.063	1.069	1.073	1.079	1.084	1.091	1.097	1.093	1.089	1.081	1.075	1.068	1.065	1.061	1.056	1.052
.025	a-1.605	a-1.610	-1.481	-1.337	-1.194	-1.073	-.510	a-.271	a.042	a.125	.115	.251	.079	.036	-.022	a-.923	a-1.144	-1.177	-1.778
.050	-2.195	-2.094	-1.541	-1.169	-.901	-.684	-.497	-.311	-.116	.026	0	-.058	-.274	-.454	-.732	-.892	-1.135	-1.436	-2.223
.100	-2.033	-1.314	-1.100	-.928	-.751	-.608	-.464	-.342	-.166	-.096	-.107	-.255	-.397	-.526	-.707	-.820	-.994	-1.158	a-1.816
.200	a-1.125	a-.980	a-.880	a-.769	a-.667	a-.558	a-.472	a-.394	-.270	-.201	-.265	-.324	-.439	-.518	-.645	-.715	a-.822	a-.920	a-1.083
.300	-.826	-.808	-.744	-.681	-.606	-.538	-.477	-.425	-.365	-.310	-.352	-.392	-.465	-.518	-.597	-.643	-.719	-.788	-.818
.400	-.696	-.701	-.657	-.617	-.565	-.516	-.470	-.436	-.394	-.359	-.404	-.418	-.473	-.509	-.560	-.591	-.648	-.697	-.713
.500	a-.599	a-.609	a-.583	a-.562	a-.524	a-.492	-.474	-.444	-.427	-.400	-.431	-.443	-.487	-.503	-.532	-.563	a-.590	-.621	-.623
.600	-.507	-.529	-.511	-.504	-.482	-.464	-.444	-.438	-.423	-.410	-.431	-.439	-.467	-.480	-.489	-.505	-.528	-.542	-.528
.700	-.399	-.413	-.412	-.418	-.410	-.409	-.405	-.413	-.410	-.407	-.424	-.422	-.437	-.433	-.425	-.423	-.434	-.438	-.410
.800	-.239	-.233	-.220	-.236	-.243	-.255	-.266	-.282	-.301	-.298	-.319	-.315	-.308	-.290	-.263	-.252	-.251	-.248	-.236
.900	-.061	-.019	-.010	-.016	-.011	.001	-.037	-.072	-.072	-.069	-.085	-.081	-.082	-.036	-.004	.007	.002	-.008	-.040
.950	.014	.054	.084	.104	.121	.130	.126	.092	.101	.113	.088	.083	.071	.101	.111	.105	.083	.058	.033
Lower surface																			
.0375	a.798	a.733	a.680	a.552	.427	.285	.121	-.056	-.262	-.462	-.348	-.195	-.006	.164	.379	.487	a.568	a.666	a.778
.075	.634	.563	.485	.378	.257	.143	.028	-.101	-.240	-.362	-.299	-.197	-.074	.051	.210	.298	.402	.494	.593
.150	.436	.372	.306	.233	.142	.058	-.027	-.120	-.211	-.291	-.251	-.188	-.104	-.015	.108	.177	.252	.327	.406
.250	.290	.237	.186	.119	.049	-.016	-.076	-.143	-.204	-.274	a-.240	a-.188	-.137	-.070	.021	.074	.175	.189	.263
.350	.200	.153	.116	.060	.006	-.046	-.088	a-.155	-.202	-.248	a-.248	a-.190	a-.154	-.098	-.017	.026	.073	.118	.179
.450	.110	.076	.045	.001	-.042	-.087	-.119	-.165	-.206	-.242	-.231	-.195	-.167	-.126	-.066	-.029	.007	.047	.097
.550	a.037	.009	-.010	-.051	-.079	-.119	-.147	-.175	-.206	-.236	-.225	-.199	-.181	-.149	-.102	-.077	-.048	-.020	-.031
.650	-.026	-.050	-.060	-.088	-.116	-.141	-.154	-.182	-.200	-.220	-.216	-.197	-.191	-.168	-.130	-.108	-.087	-.068	-.032
.750	-.071	-.081	-.084	-.100	-.118	-.132	-.136	-.151	-.160	-.168	-.173	-.164	-.167	-.156	-.130	-.117	-.105	-.098	-.072
.850	-.061	-.064	-.055	-.061	-.064	-.066	-.054	-.053	-.047	-.040	-.051	-.049	-.066	-.074	-.071	-.068	-.069	-.070	-.060
.925	-.022	-.019	0	.008	.017	.027	.058	.077	.081	.008	.081	.081	.055	.032	.017	.011	-.003	-.013	-.014
.975	.008	.020	.045	.065	.082	.104	.153	.189	.180	.177	.175	.182	.164	.117	.086	.074	.048	.030	.021
1.000	.092	.092	.117	.187	.202	.247	.311	.271	.315	.340	.285	.276	.256	.241	.217	.177	.350	.112	.097

a Faired value.

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 45.30°.

J	2.121	2.211	2.318	2.415	2.514	2.463	2.376	2.273	2.162	2.056
M_x	.632	.653	.677	.700	.725	.711	.689	.664	.640	.618
$\alpha_x{}'$	2.93	1.81	.61	-.44	-1.43	-.92	-.02	1.11	2.41	3.76
$\Delta\beta$	.15	.14	.14	.13	.12	.13	.13	.14	.15	.15
α_1	1.21	1.00	.68	.35	.16	.24	.50	.78	1.09	1.40
c_n	.4058	.3372	.2312	.1192	.0542	.0825	.1684	.2646	.3661	.4670
c_m	-.0289	-.0332	-.0305	-.0343	-.0402	-.0403	-.0367	-.0361	-.0322	-.0238
c_c	-.0051	-.0052	-.0139	-.0132	-.0127	-.0122	-.0089	-.0072	-.0044	.0151

o/b	Pressure coefficient, P									
Upper surface										
0.000	1.103	1.111	1.120	1.129	1.139	1.133	1.125	1.115	1.106	1.098
.025	-.335	.273	-.210	-.154	-.103	.008	-.030	-.082	-.134	-.686
.050	-.645	-.506	-.299	-.107	.033	.018	-.127	-.318	-.559	-.790
.100	-.675	-.549	-.379	a-.185	-.123	-.167	-.283	-.432	-.611	-.775
a.200	-.655	-.567	-.457	-.336	-.297	-.326	-.411	-.499	-.604	-.711
.300	-.618	-.567	-.494	-.427	-.378	-.402	-.455	-.524	-.596	-.658
.400	-.588	-.556	-.506	-.465	-.433	-.451	-.481	-.528	-.574	-.616
.500	-.562	-.545	-.514	-.491	-.482	-.492	-.502	-.532	-.555	-.582
.600	-.521	-.511	-.494	-.485	-.490	-.506	-.514	-.538	-.520	-.538
.700	-.449	-.449	-.441	-.444	-.464	-.465	-.449	-.454	-.452	-.445
.800	-.270	-.280	-.273	-.281	-.300	-.300	-.285	-.287	-.279	-.257
.900	.012	-.004	.014	.006	-.007	-.008	.001	-.005	.002	.022
.950	.142	.151	.163	.162	.155	.151	.154	.145	.142	.128
Lower surface										
.0375	.288	.159	-.032	-.239	-.446	-.370	-.161	.028	.224	.377
.075	.142	.046	-.092	-.244	-.386	-.336	-.189	-.054	.093	.212
.150	.055	-.016	-.118	-.222	-.318	-.284	-.185	-.089	.017	.107
.250	-.015	-.073	-.149	-.229	-.307	-.280	-.201	-.131	-.048	.020
.350	-.053	-.096	-.157	-.220	-.285	-.263	-.198	-.142	-.078	-.023
.450	-.096	-.131	-.181	-.235	-.290	-.272	-.214	-.169	-.115	-.070
.550	-.119	-.101	-.187	-.233	-.275	-.260	-.216	-.180	-.136	-.101
.650	-.156	-.175	-.208	-.244	-.274	-.265	-.231	-.204	-.169	-.143
a.750	-.149	-.160	-.181	-.202	-.214	-.212	-.195	-.181	-.157	-.143
a.850	-.071	.063	-.070	-.070	-.061	-.069	-.074	-.078	-.071	-.076
.925	.028	.048	.046	.052	.066	.060	.050	.045	.037	.015
.975	.112	.144	.139	.147	.155	.151	.043	.138	.123	.089
a1.000	.327	.372	.389	.386	.384	.384	.366	.344	.341	.290

a Faired value.

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(1) M = 0.56; $\beta_{0.75R}$ = 45.30°.

J	2.065	2.096	2.114	2.144	2.189	2.215	2.272	2.304	2.333	2.374	2.433	2.453	2.498	2.533	2.556	2.582
M_x	.676	.677	.671	.666	.664	.662	.663	.658	.656	.653	.651	.647	.645	.642	.638	.636
$\alpha_r{}'$	3.64	3.21	3.01	2.61	2.09	1.77	1.11	.78	.44	.02	-.61	-.83	-1.26	-1.61	-1.83	-2.05
$\Delta\beta$	.19	.18	.18	.17	.17	.16	.15	.15	.14	.14	.13	.13	.12	.11	.11	.10
α_1	1.33	1.30	1.23	1.15	1.02	.97	.78	.68	.64	.55	.39	.34	.29	.23	.18	.14
c_n	.4451	.4336	.4102	.3848	.3421	.3258	.2645	.2291	.2176	.1873	.1332	.1152	.0988	.0777	.0607	.0494
c_m	-.0311	-.0297	-.0311	-.0311	-.0329	-.0329	-.0346	-.0353	-.0370	-.0364	-.0404	-.0481	-.0511	-.0557	-.0606	-.0601
c_c	-.0013	-.0007	.0002	.0004	.0036	-.0024	-.0022	-.0026	.0021	-.0071	-.0067	.0085	.0060	.0056	-.0050	-.0076
c/b							Pressure coefficient, P									
Upper surface																
0.000	1.119	1.120	1.118	1.116	1.115	1.114	1.114	1.113	1.112	1.111	1.110	1.109	1.108	1.107	1.105	1.105
.025	-.137	-.139	-.153	-.165	-.165	-.171	-.175	-.183	-.193	[a].030	[a].027	[a].086	[a].042	[a].095	[a].162	.116
.050	-.636	-.657	-.667	-.637	-.553	-.513	-.413	-.346	-.290	-.228	-.140	-.086	-.051	-.003	.023	.039
.100	-.751	-.715	-.689	-.632	-.564	-.529	-.443	-.393	-.354	-.305	-.235	-.195	-.168	-.128	-.110	-.092
[a].200	-.736	-.699	-.676	-.625	-.581	-.554	-.488	-.447	-.450	-.400	-.353	-.320	-.290	-.260	-.256	-.227
.300	-.686	-.665	-.653	-.624	-.586	-.565	-.523	-.496	-.472	-.441	-.403	-.377	-.365	-.339	-.328	-.320
.400	-.643	-.626	-.621	-.599	-.572	-.555	-.526	-.503	-.488	-.462	-.432	-.414	-.402	-.383	-.378	-.369
.500	-.607	-.594	-.592	-.579	-.560	-.548	-.526	-.510	-.497	-.478	-.456	-.442	-.435	-.421	-.418	-.411
.600	-.545	-.534	-.539	-.533	-.522	-.513	-.504	-.502	-.502	-.491	-.469	-.471	-.468	-.455	-.452	-.446
.700	-.454	-.449	-.459	-.460	-.455	-.450	-.446	-.443	-.445	-.436	-.430	-.429	-.432	-.427	-.432	-.431
.800	-.251	-.253	-.264	-.272	-.277	-.276	-.282	-.282	-.290	-.292	-.294	-.307	-.319	-.325	-.335	-.336
.900	.033	.033	.023	.017	.007	.004	.002	.002	-.011	-.018	-.031	-.052	-.070	-.084	-.101	-.107
.950	.147	.147	.142	.144	.150	.151	.151	.150	.150	.148	.142	.122	.106	.090	.076	.067
Lower surface																
.0375	.338	.313	.277	.226	.168	.139	.039	-.021	.073	-.130	-.230	-.299	-.357	-.421	-.472	-.512
.075	.185	.166	.136	.097	.053	.032	-.039	-.084	-.118	-.157	-.211	-.263	-.304	-.340	-.373	-.396
.150	.092	.077	.053	.023	-.011	-.024	-.080	-.110	-.137	-.162	-.206	-.234	-.257	-.279	-.300	-.313
.250	.006	-.003	-.026	-.045	-.073	-.081	-.122	-.145	-.164	-.180	-.212	-.231	-.249	-.265	-.282	-.295
.350	-.034	-.040	-.060	-.076	-.096	-.104	-.138	-.153	-.166	-.176	-.203	-.216	-.226	-.242	-.254	-.263
.450	-.081	-.085	-.103	-.117	-.132	-.137	-.164	-.177	-.186	-.194	-.212	-.223	-.235	-.242	-.250	-.260
.550	-.108	-.113	-.127	-.138	-.149	-.153	-.175	-.185	-.190	-.194	-.209	-.214	-.224	-.227	-.234	-.238
.650	-.150	-.154	-.166	-.171	-.180	-.181	-.197	-.205	-.207	-.209	-.217	-.219	-.224	-.224	-.226	-.228
.750	-.147	-.148	-.158	-.163	-.165	-.164	-.175	-.180	-.177	-.175	-.179	-.175	-.177	-.171	-.169	-.170
[a].850	-.078	-.064	-.074	-.076	-.072	-.070	-.076	-.080	-.070	-.061	-.061	-.050	-.045	-.026	-.025	-.030
.925	.030	.033	.028	.031	.038	.045	.041	.043	.048	.058	.065	.081	.088	.104	.109	.111
.975	.110	.117	.113	.119	.131	.137	.135	.136	.140	.151	.161	.180	.188	.201	.205	.205
[a]1.000	.225	.220	.230	.242	.325	.300	.245	.245	.250	.350	.350	.300	.250	.300	.255	.280

[a]Faired value.

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Continued

(j) M = 0.60; $\beta_{0.75R}$ = 45.30°.

J	2.107	2.124	2.149	2.200	2.222	2.263	2.292	2.321	2.351	2.380	2.409	2.447	2.505	2.504	2.542
M_x	.724	.722	.716	.719	.714	.711	.706	.704	.701	.699	.694	.694	.695	.690	.690
α_r'	2.09	1.89	1.57	.97	.69	.23	-.10	-.43	-.76	-1.06	-1.36	-1.74	-2.35	-2.30	-2.70
$\Delta\beta$	.19	.19	.18	.17	.16	.15	.15	.14	.13	.12	.12	.11	.09	.09	.08
α_i	1.30	1.27	1.16	1.02	.93	.83	.76	.68	.59	.50	.42	.35	.23	.20	.15
c_n	.4365	.4265	.3912	.3452	.3141	.2795	.2552	.2316	.2016	.1697	.1432	.1181	.0777	.0668	.0516
c_m	-.0322	-.0298	-.0299	-.0301	-.0297	-.0317	-.0313	-.0326	-.0336	-.0360	-.0388	-.0414	-.0456	-.0482	-.0483
c_c	-.0082	-.0115	-.0144	-.0149	-.0146	-.0148	-.0124	-.0110	-.0128	-.0107	-.0091	-.0132	-.0130	-.0126	-.0088

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.138	1.138	1.135	1.137	1.135	1.133	1.132	1.131	1.130	1.129	1.127	1.127	1.128	1.125	1.125
.025	-.411	-.419	-.436	-.422	-.436	a-.280	-.328	-.287	-.219	-.162	-.108	-.056	.040	.026	.096
.050	-.573	-.572	-.544	-.464	-.405	-.352	-.300	-.265	-.213	-.163	-.126	-.082	-.011	.008	.037
.100	-.676	-.657	-.606	-.563	-.477	-.426	-.386	-.356	-.316	-.274	a-.237	-.208	-.145	-.138	-.106
a.200	-.727	-.702	-.660	-.598	-.562	-.510	-.486	-.462	-.435	-.393	-.370	-.344	-.293	-.293	-.264
.300	-.725	-.713	-.675	-.627	-.595	-.558	-.530	-.510	-.483	-.455	-.441	-.414	-.373	-.372	-.345
.400	-.708	-.699	-.664	-.626	-.601	-.570	-.547	-.531	-.509	-.487	-.478	-.453	-.423	-.423	-.398
.500	-.676	-.671	-.643	-.617	-.599	-.574	-.556	-.544	-.528	-.511	-.506	-.486	-.462	-.465	-.443
.600	-.584	-.591	-.576	-.562	-.555	-.538	-.530	-.524	-.513	-.509	-.510	-.502	-.485	-.497	-.485
.700	-.473	-.479	-.479	-.473	-.473	-.468	-.467	-.468	-.465	-.461	-.469	-.462	-.456	-.463	-.450
.800	-.250	-.258	-.265	-.262	-.270	-.273	-.278	-.284	-.289	-.292	-.305	-.303	-.311	-.323	-.315
.900	.038	.031	.031	.033	.030	.026	.021	.016	.010	.005	-.008	-.013	-.026	-.040	-.038
.950	.149	.146	.143	.153	.156	.158	.158	.158	.159	.158	.150	.153	.150	.139	.142
Lower surface															
.0375	.266	.237	.194	.121	.073	.023	-.026	-.064	-.120	-.178	-.242	-.292	-.394	-.433	-.470
.0775	.125	.101	.066	.013	-.024	-.060	-.095	-.123	-.162	-.201	-.249	-.279	-.344	-.374	-.388
.150	.046	.025	0	-.037	-.066	-.091	-.117	-.136	-.165	-.192	-.226	-.244	-.282	-.302	-.309
.250	-.035	-.053	-.072	-.099	-.120	-.136	-.156	-.171	-.188	-.210	-.233	-.247	-.275	-.293	-.294
.350	-.071	-.084	-.101	-.123	-.140	-.150	-.164	-.174	-.188	-.204	-.223	-.232	-.254	-.269	-.267
.450	-.119	-.132	-.143	-.161	-.174	-.180	-.192	-.200	-.210	-.220	-.238	-.244	-.259	-.272	-.267
.550	-.146	-.157	-.164	-.181	-.189	-.192	-.199	-.206	-.213	-.220	-.235	-.236	-.243	-.254	-.249
.650	-.190	-.198	-.203	-.210	-.218	-.217	-.222	-.226	-.229	-.233	-.244	-.242	-.244	-.253	-.243
.750	-.177	-.185	-.187	-.189	-.194	-.190	-.192	-.193	-.191	-.192	-.199	-.195	-.188	-.195	-.184
a.850	-.081	-.092	-.090	-.075	-.083	-.075	-.073	-.070	-.075	-.069	-.072	-.060	-.048	-.050	-.035
.925	.033	.029	.031	.036	.039	.043	.044	.048	.051	.056	.054	.064	.080	.073	.007
.975	.125	.123	.121	.127	.130	.133	.135	.136	.140	.144	.143	.153	.165	.160	.171
a1.000	.210	.245	.235	.260	.260	.265	.270	.285	.305	.325	.315	.330	.335	.335	.355

a Faired value.

NACA

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.28)(10.85) PROPELLER BLADE SECTION (x = 0.45) — Concluded

(k) M = 0.65; $\beta_{0.75R}$ = 45.30°.

J	2.118	2.152	2.170	2.205	2.245	2.267	2.317	2.343
M_r	.821	.821	.815	.811	.807	.805	.803	.801
α_r'	2.93	2.53	2.29	1.89	1.44	1.19	.61	.32
$\Delta\beta$	.22	.21	.20	.20	.19	.18	.17	.17
α_1	.96	.84	.75	.67	.59	.50	.38	.26
c_n	.3206	.2800	.2523	.2232	.2006	.1697	.1290	.0890
c_m	−.0370	−.0345	−.0299	−.0265	−.0165	−.0177	−.0201	−.0244
c_d	.0235	.0249	.0195	.0172	−.0015	.0006	.0006	.0057

x/b	Pressure coefficient, P							
Upper surface								
0.000	1.180	1.180	1.177	1.175	1.173	1.173	1.172	1.171
.025	a.100	.270	.266	.259	a.600	a.100	0	.236
.050	a−.205	−.232	−.235	−.246	−.251	−.198	−.130	−.099
.100	−.435	−.399	−.383	−.362	−.314	−.282	−.232	−.211
a.200	−.532	−.430	−.482	a−.485	a−.430	a−.412	a−.390	−.355
.300	−.636	−.606	−.597	−.581	−.539	−.522	−.503	−.496
.400	−.744	−.720	−.708	−.692	−.645	−.618	−.585	−.575
.500	−.792	−.767	−.755	−.738	−.699	−.680	−.652	−.643
a.600	−.835	−.760	−.749	−.724	−.675	−.690	−.705	−.680
.700	−.702	a−.685	−.646	−.611	−.553	−.526	−.539	−.537
.800	−.293	−.252	−.239	−.215	−.191	−.187	−.193	−.204
.900	−.122	−.074	−.047	−.018	.019	.035	.044	.044
.950	−.044	−.003	.019	.039	.071	.085	.100	.105
Lower surface								
.0375	.144	.094	a.700	a.800	−.033	−.087	−.168	−.210
.075	.039	−.003	−.021	−.054	−.099	−.139	−.195	−.226
.150	−.037	−.066	−.084	−.108	−.139	−.168	−.211	−.233
.250	−.113	−.138	−.151	−.171	−.192	−.216	−.247	−.264
.350	−.159	−.178	−.189	−.205	−.221	−.238	−.261	−.278
.450	−.222	−.239	−.248	−.252	−.270	−.282	−.303	−.316
.550	−.273	−.284	−.290	−.298	−.303	−.311	−.326	−.335
.650	−.379	a−.375	−.386	−.384	−.376	−.378	−.385	−.392
.750	−.488	a−.400	−.400	−.384	−.359	−.349	−.347	−.346
.850	−.273	−.247	−.235	−.220	−.196	−.182	−.178	−.178
.925	−.117	a−.099	−.078	−.061	−.038	−.034	−.026	−.052
.975	−.052	.001	.012	.030	.050	.054	.063	.069
a1.000	.110	.068	.150	.080	.230	.170	.250	.120

a Faired value.

NACA

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.38°.

J	0.681	0.767	0.860	0.954	1.061	1.149	1.267	1.359	1.476	1.423	1.317	1.223	1.100	1.008	0.919	0.819	0.765
M_x	.335	.342	.343	.354	.372	.378	.394	.406	.417	.414	.400	.388	.372	.365	.350	.341	.344
α_x'	15.77	13.49	11.11	8.79	6.26	4.27	1.73	-.16	-2.43	-1.41	.68	2.65	5.37	7.49	9.64	12.15	13.54
$\Delta\beta$	.13	.13	.13	.13	.13	.12	.12	.11	.11	.11	.11	.12	.12	.13	.13	.13	.13
α_1	3.83	3.50	3.04	2.60	2.05	1.55	1.04	.68	.16	.35	.85	1.16	1.61	2.27	2.71	3.15	3.51
a_n	1.1168	1.0502	.9339	.8143	.6520	.4981	.3394	.2256	.0517	.1168	.2786	.3749	.5166	.7163	.8413	.9577	1.0523
c_m	-.0714	-.0510	-.0313	-.0290	-.0320	-.0361	-.0519	-.0656	-.0700	-.0784	-.0682	-.0471	-.0428	-.0371	-.0232	-.0246	-.0405
c_0	-.0306	-.0400	-.0442	-.0584	-.0410	-.0235	-.0087	.0031	.0070	.0087	.0023	-.0078	-.0100	-.0459	-.0586	-.0510	-.0452

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.028	1.030	1.030	1.032	1.035	1.036	1.040	1.042	1.045	1.044	1.041	1.038	1.035	1.034	1.031	1.030	1.030
.025	-1.493	-1.425	-1.436	-2.147	a-1.555	a-1.002	a-.506	a-.163	a.190	a.296	-.165	a-.528	a-.916	-1.903	-2.192	a-1.686	a-1.641
.050	-1.664	-1.558	-1.596	-1.821	-1.265	-.865	-.434	-.201	.074	.070	-.225	-.487	-.831	-1.373	-1.821	-1.713	-1.641
.100	-1.619	-1.554	-1.623	-1.198	-.874	-.649	-.405	-.232	-.028	-.096	-.290	-.464	-.697	-.900	-1.491	-1.678	-1.635
a.200	-1.449	-1.465	-1.433	-.896	-.700	-.555	-.403	-.292	-.180	-.251	-.347	-.454	-.599	-.744	-.970	-1.442	-1.556
.300	-1.244	-1.317	-1.116	-.746	-.627	-.538	-.423	-.338	-.233	-.273	-.372	-.453	-.568	-.668	-.701	-1.109	-1.292
.400	-1.045	-1.034	-.786	-.629	-.563	-.496	-.413	-.355	-.270	-.303	-.376	-.438	-.525	-.598	-.608	-.786	-.963
.500	-.842	-.749	-.565	-.550	-.515	-.472	-.413	-.372	-.306	-.334	a-.404	-.431	-.493	-.545	-.536	-.576	-.677
.600	-.675	-.538	-.439	-.486	-.473	-.450	-.420	-.390	-.348	-.364	a-.422	-.431	-.469	-.500	-.485	-.462	-.498
.700	-.536	-.403	-.349	-.403	-.412	-.403	-.402	-.390	-.359	-.374	a-.421	-.404	-.422	-.427	-.405	-.362	-.378
.800	-.416	-.292	-.249	-.282	-.287	-.291	-.325	-.341	-.322	-.334	-.346	-.315	a-.298	-.300	-.282	-.262	-.284
.900	-.324	-.194	-.136	-.115	-.087	-.084	-.150	-.159	-.204	-.185	-.165	-.121	a-.113	a-.116	-.113	-.139	-.196
.950	-.231	-.153	-.076	-.023	.020	.043	-.026	-.058	-.075	-.086	-.072	-.013	a-.003	-.002	-.020	-.065	-.120
Lower surface																	
.0375	.902	.859	.804	.739	.607	.424	.123	-.118	-.422	-.351	-.036	.213	.461	.658	.749	.805	.852
.075	.731	.671	.613	.533	.412	.259	.024	-.132	a-.360	-.263	-.090	.076	.268	.446	.533	.600	.661
.150	.546	.496	.440	.371	.267	.147	-.008	-.114	-.263	-.209	-.079	.039	.175	.307	.381	.442	.501
.250	.402	.361	.319	.257	.180	.086	-.033	-.107	-.207	-.168	-.083	-.002	.100	.210	.263	.316	.363
.350	.296	.259	.228	.174	.108	.032	-.063	-.118	-.197	-.168	-.097	-.040	.045	.128	.178	.220	.260
.450	.204	.187	.159	.116	.060	.001	-.077	-.118	-.174	-.151	-.104	-.058	.005	.079	.115	.150	.184
a.550	.120	.107	.095	.063	.010	-.033	-.091	-.126	-.164	-.151	-.113	-.086	-.034	.031	.062	.078	.107
.650	.046	.044	.037	.019	-.016	-.053	-.095	-.111	-.144	-.131	-.104	-.091	-.057	-.002	.018	.022	.041
.750	-.009	.003	.012	.006	-.015	-.038	-.049	-.061	-.078	-.062	-.062	-.065	-.045	-.002	.001	-.003	.001
.850	-.070	-.032	-.011	.006	-.004	-.011	-.019	.008	a-.009	-.008	.010	.017	-.026	.002	.001	-.017	-.026
.925	-.101	-.041	.002	.027	.024	.028	.047	.078	.057	.080	.064	.032	.002	.022	.022	a-.011	a-.030
.975	a-.076	a-.013	a.053	a.086	a.087	a.072	a.114	a.161	a.128	.213	a-.210	a.102	a.075	a.054	.070	a.031	a.005
1.000	.022	.086	.137	.188	.216	.256	.202	.252	.230	.351	.354	.203	.185	.207	.167	.127	.096

a Faired value.

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.38°.

J	0.704	0.775	0.842	0.926	1.005	1.095	1.183	1.269	1.372	1.463	1.397	1.312	1.225	1.149	1.051	0.968	0.884	0.813	0.735
M_x	.400	.414	.417	.430	.434	.452	.459	.470	.485	.499	.489	.479	.463	.452	.439	.428	.425	.414	.403
α_x'	15.15	13.28	11.56	9.47	7.57	5.47	3.51	1.67	-.42	-2.20	-.92	.80	2.62	4.27	6.48	8.44	10.50	12.30	14.33
$\Delta\beta$	.18	.18	.18	.18	.17	.17	.17	.16	.15	.15	.15	.16	.16	.17	.17	.18	.18	.18	.18
α_1	3.82	3.62	3.33	2.75	2.39	1.93	1.37	1.03	.56	.18	.39	.84	1.12	1.49	2.01	2.56	3.00	3.39	3.72
c_n	1.1235	1.0917	1.0194	.8585	.7557	.6162	.4437	.3380	.1859	.0588	.1281	.2742	.3647	.4810	.6373	.8050	.9285	1.0319	1.1085
c_m	-.0836	-.0477	-.0185	-.0234	-.0272	-.0275	-.0387	-.0514	-.0654	-.0727	-.0717	-.0689	-.0501	-.0416	-.0361	-.0289	-.0176	-.0311	-.0649
c_c	-.0374	-.0562	-.0769	-.0652	-.0570	-.0434	-.0157	-.0044	.0051	.0130	.0097	.0054	.0096	-.0166	-.0336	-.0590	-.0734	-.0663	-.0508

x/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.041	1.044	1.045	1.047	1.049	1.053	1.054	1.057	1.060	1.064	1.061	1.059	1.055	1.053	1.050	1.047	1.046	1.044	1.041
.025	a-2.054	a-2.103	a-2.446	-2.379	-2.303	-1.871	a-.732	a-.399	-.033	a-.330	.090	a-.182	-.431	-.792	a-1.387	-2.289	-2.441	-2.100	-2.108
.050	a-1.735	a-1.946	a-2.169	-1.867	-1.665	-1.062	-.683	-.413	-.143	.077	-.033	-.253	-.505	-.763	a-1.113	-1.890	a-2.156	-1.955	a-1.866
.100	-1.400	-1.779	-1.663	-1.455	-.999	-.807	-.573	-.421	-.290	-.056	-.151	-.316	-.484	-.648	-.879	-1.163	-1.641	-1.609	-1.502
.200	-1.280	-1.450	-1.435	-.999	-.797	-.688	-.552	-.430	-.389	-.227	-.275	-.390	-.479	-.596	-.747	-.873	-1.260	-1.424	-1.402
.300	-1.203	-1.320	-1.196	-.787	-.710	-.627	-.523	-.445	-.343	-.269	-.321	-.401	-.478	-.527	-.664	-.740	-.987	-1.260	-1.279
.400	-1.065	-1.071	-.869	-.668	-.633	-.569	-.496	-.437	-.367	-.303	-.344	-.406	-.465	-.520	-.599	-.652	-.714	-.966	-1.074
.500	-.915	-.819	-.688	-.578	-.576	-.531	-.476	-.440	-.387	-.343	-.380	-.422	-.458	-.495	-.552	-.584	-.559	-.714	-.862
.600	-.778	-.609	-.487	-.504	-.519	-.497	-.464	-.443	-.408	-.377	-.403	-.432	-.456	-.476	-.513	-.523	-.477	-.533	-.686
.700	-.651	-.461	-.384	-.417	-.444	-.435	-.423	-.421	-.408	-.392	-.411	-.429	-.429	-.431	-.445	-.441	-.392	-.411	-.563
.800	-.537	-.343	-.281	-.288	-.308	-.308	-.312	-.335	-.354	-.353	-.362	-.369	-.333	-.312	-.315	-.307	-.283	-.301	-.477
.900	-.430	-.241	-.169	-.136	-.114	-.084	-.097	-.152	-.171	-.197	-.186	-.179	-.130	-.094	-.103	-.124	-.144	-.188	-.365
.950	-.312	-.198	-.115	-.059	-.014	.029	.048	-.014	-.060	-.088	-.099	-.084	-.019	.030	.015	-.020	-.062	-.120	-.275
Lower surface																			
.0375	a.859	.834	.789	.744	.656	.525	.313	.101	-.187	-.422	-.331	-.052	.192	.392	.573	.700	.759	.800	.843
.075	a.681	a.643	a.608	a.528	a.461	a.337	a.170	.018	-.182	-.377	-.283	-.102	.065	.294	.372	.490	.548	.604	.649
.150	.501	.467	.428	.376	.300	.214	.085	-.028	-.161	-.281	-.219	-.102	.018	.126	.242	.340	.394	.442	.481
.250	.360	.339	.303	.260	.198	.130	.034	-.055	-.141	-.227	-.184	-.107	-.025	.064	.148	.223	.274	.312	.345
.350	.253	.234	.210	.171	.120	.064	-.010	-.079	-.151	-.219	-.189	-.123	-.056	.013	.080	.144	.183	.216	.235
.450	.169	.159	.135	.109	.069	.020	-.042	-.093	-.143	-.200	-.176	-.128	-.077	-.018	.033	.086	.117	.138	.152
.550	a.089	.079	.069	.050	.012	-.030	-.069	-.109	-.161	-.208	-.186	-.136	-.101	-.054	-.010	.033	.059	.068	.077
.650	.009	.011	.007	.001	-.024	-.052	-.084	-.114	-.141	-.167	-.161	-.133	-.111	-.076	-.049	-.011	.004	.005	0
.750	-.048	-.028	-.022	-.015	-.027	-.044	-.063	-.079	-.078	-.076	-.079	-.084	-.077	-.057	-.043	-.020	-.018	-.027	-.050
.850	-.118	-.064	-.044	-.024	-.018	-.030	-.042	-.030	-.012	-.019	-.025	a.010	-.030	-.038	-.032	-.020	-.027	-.055	-.102
.925	-.136	-.068	-.032	-.002	.009	.008	.020	.043	.050	.050	.043	.057	.016	.021	-.008	.004	-.015	-.052	a-.123
.975	-.077	-.028	.016	.061	.075	.075	.100	.122	.106	.112	.103	.107	.066	.102	.052	.064	.016	.010	-.097
a1.000	.033	.054	.106	.167	.166	.236	.265	.202	.166	.160	.161	.167	.127	.219	.206	.166	.105	.096	0

a Faired value.

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) — Continued

(c) $N = 1600$ rpm; $\beta_{0.75R} = 29.38°$.

J	0.840	0.896	0.969	1.035	1.119	1.184	1.266	1.338	1.430	1.464	1.375	1.309	1.221	1.141	1.059	1.003	0.940	0.867
M_x	.520	.513	.518	.525	.540	.550	.562	.572	.581	.589	.573	.564	.552	.539	.531	.522	.512	.505
α_x'	11.61	10.21	8.42	6.86	4.94	3.50	1.75	.27	-1.56	-2.20	-.48	.85	2.70	4.44	6.30	7.61	9.12	10.93
$\Delta\beta$	.25	.25	.25	.24	.24	.24	.23	.23	.23	.22	.23	.23	.24	.24	.24	.25	.25	.25
α_1	3.06	2.99	2.67	2.32	1.81	1.46	1.08	.66	.25	.15	.44	.76	1.19	1.62	2.07	2.46	2.79	3.13
c_n	.9333	.9249	.8405	.7358	.5816	.4737	.3530	.2186	.0845	.0495	.1454	.2478	.3865	.5224	.6574	.7763	.8724	.9628
c_m	-.0339	-.0189	-.0243	-.0293	-.0297	-.0371	-.0451	-.0547	-.0641	-.0587	-.0596	-.0565	-.0487	-.0396	-.0333	-.0310	-.0217	-.0281
c_0	-.0526	-.0707	-.0638	-.0574	-.0370	-.0281	-.0222	-.0050	-.0012	.0025	.0005	.0013	-.0066	-.0193	-.0402	-.0575	-.0656	-.0661
c/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.069	1.067	1.068	1.071	1.074	1.077	1.081	1.084	1.087	1.089	1.084	1.082	1.078	1.074	1.072	1.070	1.067	1.065
.025	-1.919	-2.572	-2.533	-2.439	-1.636	-1.268	-.863	a-.204	a.078	a.150	.023	-.083	-.449	-.843	-1.601	-2.166	-2.482	-2.658
.050	-1.556	a-2.008	-2.063	-1.580	-1.003	-.737	-.465	-.213	.014	.084	-.066	-.235	-.520	-.833	-1.138	-1.755	-1.927	-1.660
.100	-1.383	-1.556	-1.336	-.992	-.777	-.602	-.432	-.239	-.068	-.018	-.158	-.281	-.500	-.696	-.901	-1.062	-1.446	-1.497
a.200	-1.207	-1.180	-.934	-.806	-.689	-.560	-.442	-.328	-.215	-.178	-.279	-.361	-.496	-.626	-.763	-.840	-.978	-1.223
.300	-1.021	-.889	-.772	-.712	-.686	-.552	-.465	-.379	-.290	-.258	-.337	-.399	-.502	-.593	-.684	-.727	-.783	-.986
.400	-.799	-.705	-.666	-.631	-.570	-.518	-.456	-.395	-.326	-.303	-.362	-.407	-.483	-.546	-.614	-.648	-.667	-.776
.500	-.616	-.573	-.583	-.569	-.531	-.497	-.456	-.411	-.357	-.339	-.387	-.417	-.475	-.518	-.566	-.582	-.580	-.609
.600	-.480	-.470	-.509	-.515	-.496	-.480	-.456	-.429	-.395	-.378	-.416	-.433	-.475	-.499	-.526	-.535	-.540	-.537
.700	-.365	-.373	-.416	-.435	-.433	-.434	-.428	-.419	-.397	-.388	-.398	-.415	-.435	-.435	-.441	-.438	-.407	-.384
.800	-.262	a-.263	-.275	a-.289	-.293	-.308	-.330	-.332	-.328	-.326	-.335	-.328	-.322	-.302	-.292	-.288	-.270	-.270
.900	-.166	-.128	-.101	-.077	-.057	-.071	-.122	-.126	-.139	-.138	-.136	-.119	-.099	-.065	-.065	-.088	-.110	-.161
.950	a-.100	-.037	-.004	.028	.068	.085	.040	.022	.004	.003	0	.018	.039	.091	.059	.020	-.009	-.075
Lower surface																		
.0375	a.789	.795	.742	.652	.489	.331	.110	-.118	-.410	-.412	-.246	-.032	.224	.424	.595	.688	.764	.816
.075	a.642	.671	.533	.448	.311	.193	.026	-.146	-.326	-.386	-.234	-.095	.097	.265	.390	.464	.539	.604
.150	.478	.437	.381	.312	.195	.103	-.028	-.136	-.245	-.286	-.186	-.091	.033	.161	.264	.346	.413	.455
.250	.349	.311	.267	.207	.117	.051	-.034	-.122	-.203	-.232	-.160	-.095	.003	.102	.164	.217	.274	.320
.350	.248	.217	.179	.135	.064	0	-.077	-.142	-.207	-.228	-.170	-.115	-.041	.034	.110	.151	.204	.226
.450	.176	.151	.122	.080	.015	-.030	-.089	-.138	-.188	-.204	-.160	-.119	-.060	-.001	.053	.100	.134	.165
a.550	.095	.084	.054	.023	-.051	-.061	-.111	-.149	-.200	-.213	-.171	-.131	-.086	-.039	-.013	.031	.063	.095
.650	.037	.024	.015	-.014	-.053	-.079	-.116	-.146	-.173	-.179	-.158	-.129	-.095	-.056	-.039	-.007	.021	.052
.750	.014	-.004	.007	-.010	-.026	-.042	-.071	-.097	-.112	-.115	-.101	-.071	-.058	-.031	-.021	-.007	.002	-.005
.850	-.039	-.016	.005	-.005	-.008	0	.006	-.041	-.040	-.040	-.027	-.014	-.007	-.003	-.001	.002	.002	-.005
.925	-.001	-.008	.015	.012	-.006	0	.012	.050	.059	.063	.039	.025	.009	.007	.014	.020	.016	-.020
.975	a.045	a.042	a.070	a.077	a.053	a.079	a.071	.242	.240	.242	c.156	a.101	a.064	a.082	a.069	a.067	c.068	a.063
a1.000	.159	.137	.198	.269	.307	.407	.405	.444	.401	.450	.602	.363	.325	.389	.309	.207	.262	.317

a Faired value.

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) — Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.38°.

J	1.028	1.097	1.154	1.210	1.274	1.343	1.404	1.364	1.295	1.245	1.187	1.123	1.061
M_x	.663	.674	.683	.692	.703	.717	.724	.719	.704	.695	.686	.675	.666
$a_x{}'$	7.02	5.43	4.16	2.93	1.58	.16	-1.05	-.26	1.14	2.18	3.43	4.84	6.25
$\Delta\beta$	.38	.37	.37	.36	.35	.34	.33	.34	.35	.35	.36	.37	.38
a_1	2.56	2.11	1.75	1.43	1.06	.61	.25	.39	.72	1.11	1.41	1.83	2.34
c_n	.8132	.6771	.5647	.4652	.3465	.2015	.0815	.1289	.2372	.3625	.4565	.5682	.7458
c_m	-.0191	-.0287	-.0360	-.0384	-.0433	-.0498	-.0551	-.0560	-.0561	-.0503	-.0462	-.0403	-.0273
c_a	-.0599	-.0534	-.0350	-.0261	-.0166	-.0066	-.0048	-.0020	.0092	-.0022	-.0109	-.0291	-.0501

a/b	Pressure coefficient, P												
Upper surface													
0.000	1.114	1.119	1.122	1.126	1.130	1.136	1.138	1.139	1.131	1.127	1.124	1.119	1.116
.025	-1.806	-1.769	-1.081	-.836	-.514	-.196	a-.007	.013	-.006	a-.269	-.488	-.975	-1.551
.050	-1.780	-1.209	-.862	a-.773	a-.511	a-.253	a.078	a.053	-.198	-.389	a-.489	-.861	-1.502
.100	-1.545	-1.002	-.806	-.693	-.508	-.324	-.173	-.166	-.184	-.484	-.501	-.742	a-1.278
a.200	-1.066	-.854	-.736	-.641	-.508	-.381	-.270	-.303	-.323	-.514	-.580	-.739	-.970
.300	-.818	-.760	-.683	-.610	-.514	-.412	-.335	-.374	-.464	-.541	-.630	-.719	-.783
.400	-.718	-.683	-.633	-.587	-.518	-.443	-.384	-.414	-.480	-.537	-.599	-.656	-.695
.500	-.641	-.624	-.596	-.569	-.527	-.472	-.434	-.456	-.500	-.540	-.580	-.610	-.629
.600	-.566	-.565	-.557	-.548	-.525	-.498	-.478	-.491	-.513	-.535	-.561	-.779	-.592
.700	-.447	-.460	-.466	-.471	-.471	-.464	-.464	-.466	-.468	-.472	-.476	-.468	-.455
.800	-.250	-.272	-.290	-.309	-.326	-.337	-.352	-.347	-.333	-.322	-.308	-.286	-.261
.900	-.015	-.022	-.031	-.044	-.068	-.085	-.106	-.098	-.077	-.057	-.042	-.028	-.022
.950	.055	.059	.067	.078	.077	.070	.056	.056	.068	.074	.070	.062	.051
Lower surface													
.0375	.630	.519	.363	.265	.067	-.181	-.483	-.314	-.028	.137	.311	.462	.576
.075	.436	.333	.229	.126	-.021	-.198	-.361	-.261	-.092	.026	.156	.280	.379
.150	.298	.216	.135	.056	-.051	-.171	-.293	-.229	-.097	-.016	.080	.174	.252
.250	.203	.137	.073	.010	-.071	-.158	-.254	-.201	-.106	-.046	.029	.103	.169
.350	.124	.065	.009	-.042	-.109	-.187	a-.252	-.224	a-.126	-.088	-.026	.037	.092
.450	.071	.020	-.027	-.068	-.126	-.188	-.254	-.218	-.147	-.109	-.056	-.003	.046
.550	.024	-.025	-.065	-.102	-.148	-.201	-.254	-.225	-.165	-.132	-.089	-.044	-.003
.650	-.030	-.066	-.097	-.123	-.159	-.198	-.238	-.217	-.173	-.150	-.117	-.080	-.043
.750	-.027	-.052	-.075	-.091	-.114	-.136	-.160	-.150	-.120	-.110	-.087	-.065	-.037
.850	-.024	-.037	-.049	-.052	-.059	-.062	-.066	-.066	-.070	-.060	-.054	-.043	-.030
.925	.018	.015	.016	.022	.028	.039	.045	.042	.038	.022	.016	.015	.018
.975	.022	.046	.064	.080	.103	.125	.144	.136	.119	.108	.092	.074	.064
a1.000	.135	.103	.174	.163	.202	.191	.225	.221	.202	.183	.163	.133	.207

aFaired value.

NACA

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) — Continued

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.38°.

J	1.105	1.165	1.230	1.290	1.345	1.359	1.320	1.256	1.190	1.126
M_x	.726	.737	.749	.762	.769	.774	.762	.749	.739	.725
α_x'	5.25	3.91	2.50	1.24	.11	-.16	.63	1.96	3.37	4.78
$\Delta\beta$	.44	.43	.42	.41	.40	.40	.41	.42	.42	.43
α_1	1.94	1.67	1.29	.89	.53	.30	.61	.94	1.42	1.86
c_n	.6214	.5412	.4203	.2939	.1744	.0980	.2000	.3048	.4607	.5966
c_m	-.0443	-.0438	-.0477	-.0529	-.0591	-.0600	-.0528	-.0535	-.0482	-.0410
c_o	-.0314	-.0273	-.0142	-.0045	.0027	.0037	.0070	.0059	-.0143	-.0237

c/b	Pressure coefficient, P									
Upper surface										
0.000	1.140	1.144	1.149	1.154	1.157	1.159	1.154	1.149	1.145	1.139
.025	-.952	a-.827	a-.548	a-.230	a-.030	a-.140	.082	-.075	a-.698	a-.895
.050	-.878	-.753	-.514	-.274	-.105	-.028	-.089	-.267	a-.586	a-.824
.100	-.739	-.660	-.481	-.301	-.167	-.096	-.197	-.340	-.539	-.741
a.200	-.771	-.679	-.548	-.427	-.335	-.287	-.378	-.454	-.601	-.779
.300	-.792	-.724	-.627	-.518	-.428	-.381	-.449	-.540	-.654	-.785
.400	-.783	-.709	-.633	-.550	-.478	-.438	-.494	-.568	-.654	-.759
.500	-.750	-.695	-.649	-.592	-.537	-.508	-.552	-.606	-.667	-.735
.600	-.675	-.659	-.653	-.635	-.606	-.601	-.623	-.642	-.663	-.671
.700	-.508	-.504	-.520	-.548	-.575	-.592	-.569	-.540	-.527	-.509
.800	-.281	-.284	-.304	-.328	-.337	-.349	-.341	-.326	-.313	-.282
.900	-.024	-.014	-.021	-.039	-.050	-.066	-.061	-.041	-.029	-.025
.950	.143	.140	.133	.082	.067	.073	.076	.073	.074	.144
Lower surface										
.0375	.422	.312	.170	.015	-.164	-.349	-.156	.041	.226	.378
.075	.294	.205	.059	-.070	-.185	-.306	-.192	-.037	.075	.234
.150	.169	.117	.021	-.086	-.187	-.251	-.171	-.067	.046	.184
.250	.122	.067	-.016	-.104	-.171	-.222	-.167	-.091	-.002	.090
.350	.033	-.007	-.076	-.147	-.208	-.259	-.206	-.142	-.064	.022
.450	.003	-.037	-.093	-.164	-.213	-.255	-.209	-.145	-.084	-.018
a.550	-.082	-.092	-.125	-.171	-.251	-.262	-.252	-.162	-.122	-.061
.650	-.094	-.116	-.155	-.195	-.228	-.274	-.244	-.198	-.153	-.109
.750	-.057	-.076	-.118	-.147	-.170	-.195	-.177	-.151	-.120	-.092
.850	-.060	-.060	-.075	-.081	-.082	-.099	-.097	-.087	-.076	-.068
.925	-.039	-.014	.006	.020	.031	.021	.017	.009	.005	-.005
.975	.194	.201	.141	.145	.122	.110	.105	.091	.086	.059
a1.000	.648	.510	.406	.282	.251	.281	.302	.273	.285	.411

a Faired value.

NACA RM L50H03

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) - Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.55°.

J	1.494	1.664	1.781	1.917	2.029	2.166	2.276	2.413	2.548	2.446	2.349	2.228	2.057	1.987	1.858	1.719	1.603
M_x	.415	.437	.456	.467	.483	.502	.516	.534	.555	.539	.527	.511	.488	.476	.463	.444	.431
α_r'	11.41	9.37	7.41	5.31	3.69	1.82	.42	-1.21	-2.70	-1.57	-.47	1.03	3.29	4.30	.623	.845	10.42
$\Delta\beta$	.14	.14	.14	.13	.13	.12	.12	.11	.11	.11	.12	.12	.13	.13	.13	.14	.14
α_1	3.04	2.52	2.16	1.68	1.27	.96	.70	.38	.07	.27	.46	.79	1.22	1.44	1.85	2.43	2.76
c_n	1.0554	.8832	.7626	.5934	.4543	.3426	.2529	.1372	.0245	.0975	.1662	.2820	.4340	.5118	.6546	.8521	.9652
c_m	-.0254	-.0097	-.0297	-.0321	-.0415	-.0448	-.0573	-.0686	-.0722	-.0683	-.0715	-.0537	-.0425	-.0365	-.0317	-.0152	-.0008
c_o	-.0693	-.0593	-.0424	-.0259	-.0074	-.0036	.0006	.0045	.0066	.0087	.0091	.0007	-.0145	-.0237	-.0446	-.0791	-.0904

o/b	Pressure coefficient, P																
Upper surface																	
0.000	1.044	1.049	1.053	1.056	1.060	1.064	1.068	1.073	1.079	1.074	1.071	1.067	1.061	1.058	1.055	1.051	1.048
.025	-3.097	-2.785	a-2.079	a-1.437	-.701	-.470	a-.198	.017	.259	.233	.208	-.153	a-.748	a-.904	a-1.488	a-2.729	a-2.988
.050	-3.077	-2.776	a-2.039	-1.422	-.682	-.460	-.237	-.035	.145	.060	-.064	-.296	a-.635	-.788	a-1.149	a-2.439	a-2.874
.100	-1.632	-1.823	a-1.100	-.793	-.598	-.432	a-.274	-.119	.020	-.083	-.179	a-.346	-.557	-.667	-.861	-1.532	-2.095
a.200	-1.363	-.978	-.805	-.668	-.556	-.445	-.339	-.240	-.122	-.206	-.284	-.392	-.532	-.604	-.711	-.874	-1.069
.300	-1.170	-.747	-.688	-.606	-.528	-.446	-.378	-.300	-.225	-.283	-.332	-.410	-.514	-.562	-.644	-.696	-.766
.400	-.879	-.616	-.606	-.549	-.495	-.436	-.387	-.326	-.270	-.313	-.352	-.410	-.488	-.519	-.577	-.625	-.632
.500	-.654	-.531	-.546	-.508	-.472	-.434	-.398	-.354	-.313	-.347	-.377	-.415	-.468	-.488	-.529	-.556	-.540
.600	-.502	-.459	-.488	-.473	-.454	-.434	-.410	-.384	-.354	-.377	-.399	-.422	-.453	-.467	-.485	-.497	-.458
.700	-.386	-.365	-.405	-.405	-.402	-.399	-.398	-.384	-.368	-.381	-.397	-.398	-.406	-.409	-.415	-.408	-.360
.800	-.284	-.239	-.269	-.269	-.284	-.301	-.333	-.332	-.327	-.334	-.341	-.317	-.294	-.286	-.276	-.270	-.238
.900	-.187	-.096	-.072	-.050	-.060	-.088	-.138	a-.156	-.164	-.152	-.151	-.119	-.070	-.060	-.062	a-.104	-.118
.950	-.134	-.032	.017	.059	.062	.047	-.020	-.039	-.057	-.056	-.048	.008	.050	.057	.033	a-.005	-.064
Lower surface																	
.0375	a.902	.784	.705	.558	.387	.164	-.068	-.282	-.480	-.328	-.213	.039	.339	.446	.619	.735	.821
.075	.665	.659	a.492	a.312	.228	.057	-.101	-.247	-.425	-.296	-.193	-.027	.185	.275	.418	.526	.624
.150	.482	.414	.341	.183	.132	.011	-.096	-.188	-.305	-.220	-.153	-.046	.104	.165	.276	.371	.449
.250	.358	.298	.237	.156	.076	-.017	-.091	-.149	-.231	-.175	-.128	-.058	.052	.099	.184	.266	.322
.350	.252	.201	.153	.083	.024	-.049	-.112	-.160	-.221	-.177	-.142	-.084	.002	.043	.111	.172	.221
.450	.139	.112	.095	.043	-.009	-.068	-.112	-.152	-.196	-.165	-.137	-.093	-.024	.007	.062	.079	.156
.550	.126	.078	.038	.002	-.042	-.093	-.136	-.167	-.196	-.173	-.153	-.117	-.059	-.030	.014	.041	.077
.650	.041	.048	.029	-.028	-.057	-.093	-.117	-.136	-.155	-.141	-.130	-.109	-.070	-.052	-.019	.013	.046
.750	-.006	.014	.006	-.017	-.037	-.058	-.050	-.071	-.078	-.069	-.068	-.069	-.049	-.035	-.016	.007	.008
.850	-.042	-.001	.020	.007	-.019	-.034	-.041	-.013	-.006	0	-.006	-.022	-.024	-.017	-.003	.004	-.014
.925	-.049	.017	a.028	.015	.032	.038	.069	.089	.096	.072	.070	.058	.032	.033	.025	.022	-.011
.975	.014	.057	.094	.078	.092	.111	.164	.177	.190	.188	.175	.136	.084	.078	.084	.079	.033
a1.000	.143	.204	.183	.253	.207	.241	.251	.276	.275	.276	.276	.221	.202	.192	.202	.173	.102

[a]Faired value.

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) - Continued

(g) N = 1350 rpm; $\beta_{0.75R}$ = 44.55°

J	1.509	1.621	1.765	1.873	1.970	2.062	2.193	2.289	2.412	2.516	2.430	2.344	2.184	2.134	2.013	1.891	1.812	1.698	1.577
M_x	.500	.513	.536	.552	.567	.578	.598	.614	.636	.653	.637	.624	.596	.589	.568	.552	.540	.521	.508
α_r'	12.12	10.11	7.68	5.98	4.53	3.23	1.48	.27	-1.19	-2.36	-1.40	-.40	1.60	2.25	3.92	5.71	6.93	8.79	10.88
$\Delta\beta$	.19	.19	.18	.18	.18	.17	.16	.16	.15	.14	.15	.16	.17	.17	.17	.18	.18	.19	.19
α_1	2.85	2.54	2.21	1.91	1.63	1.32	.95	.72	.32	.06	.17	.41	.86	1.04	1.41	1.79	2.06	2.39	2.72
c_n	.9895	.8869	.7770	.6743	.5808	.4708	.3420	.2607	.1165	.0226	.0615	.1486	.3097	.3714	.5047	.6329	.7286	.8375	.9505
c_m	-.0640	-.0329	-.0351	-.0328	-.0372	-.0354	-.0426	-.0512	-.0600	-.0611	-.0640	-.0569	-.0511	-.0458	-.0399	-.0318	-.0330	-.0251	-.0191
c_c	-.0241	-.0324	-.0315	-.0266	-.0224	-.0247	-.0155	-.0089	.0065	.0109	.0160	.0049	.0099	-.0029	-.0082	-.0327	-.0495	-.0491	-.0659

c/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.064	1.067	1.073	1.078	1.082	1.086	1.092	1.097	1.105	1.111	1.105	1.101	1.091	1.089	1.083	1.078	1.075	1.069	1.066
.025	a-1.242	-1.317	-1.568	-1.493	-1.395	-1.177	a-.639	-.405	a.062	.230	a.441	.102	.047	-.395	-.783	-1.338	-1.682	-1.864	2.019
.050	-1.502	-1.739	-1.803	-1.678	-1.569	-.745	-.460	-.254	a.062	.117	.091	-.086	-.358	-.498	-.779	-1.079	-1.497	-1.891	2.052
.100	-1.458	-1.736	-1.293	-.944	-.776	-.598	-.420	-.263	-.108	.013	-.067	-.187	-.414	-.494	-.684	-.890	-1.013	-1.589	1.923
a.200	-1.339	-1.295	-.985	-.789	-.691	-.583	-.453	-.348	-.247	-.157	-.241	-.315	-.462	-.503	-.626	-.770	-.840	-.962	1.209
.300	-1.201	-.966	-.764	-.697	-.632	-.568	-.470	-.404	-.329	-.260	-.309	-.367	-.475	-.507	-.599	-.682	-.733	-.769	.919
.400	-1.013	-.719	-.662	-.620	-.577	-.535	-.465	-.415	-.361	-.309	-.348	-.389	-.473	-.491	-.554	-.614	-.649	-.667	.722
.500	-.794	-.575	-.585	-.565	-.538	-.516	-.465	-.427	-.392	-.356	-.386	-.411	-.473	-.485	-.526	-.562	-.589	-.588	.596
.600	-.618	-.476	-.517	-.512	-.503	-.497	-.465	-.440	-.422	-.399	-.424	-.435	-.490	-.481	-.507	a-.496	-.529	-.415	.496
.700	-.476	-.379	-.418	-.425	-.431	-.442	-.427	-.415	-.414	-.405	-.421	-.418	-.443	-.431	-.437	a-.414	-.439	-.419	.395
.800	-.354	-.263	-.273	-.275	-.287	-.311	-.314	-.313	-.334	-.337	-.345	-.329	-.381	-.315	-.302	a-.287	-.288	-.274	.276
.900	-.255	-.139	-.082	-.051	-.046	-.070	-.078	-.088	-.118	-.132	-.132	-.108	-.098	-.078	-.060	-.056	-.069	-.098	.159
.950	-.200	-.086	.003	.040	.057	.054	.059	.056	.032	.023	.018	.039	.038	.053	.055	.041	.021	-.020	.098
Lower surface																			
.0375	.730	.733	.689	.613	.484	.308	.103	-.066	-.304	-.446	-.361	-.200	.086	.199	.405	.569	.658	a.733	a.768
.075	.619	.585	.506	.406	.308	.182	a.023	-.093	-.276	-.443	-.351	-.192	a.020	.079	.238	a.328	.447	.531	.602
.150	.488	.422	.350	.287	.189	.087	-.012	-.092	-.214	-.324	-.266	-.156	-.029	.027	.137	.251	.305	.370	.432
.250	.329	.297	.241	.177	.115	.044	a-.055	-.092	-.179	-.260	-.217	-.134	-.044	.003	.077	.164	.200	.257	.305
.350	.222	.193	.149	.100	.049	-.022	-.080	a-.112	-.189	-.251	-.219	-.156	-.087	-.049	.017	.081	.123	.167	.205
.450	.149	.129	.088	.057	-.001	-.052	-.097	a-.133	a-.196	a-.243	-.223	a-.182	a-.134	a-.084	-.022	.016	.067	.090	.119
.550	.048	.033	.027	-.014	-.038	-.082	-.113	a-.142	-.193	a-.225	a-.212	-.176	-.141	-.107	-.054	a-.029	.043	.043	a.052
.650	.048	.049	a.003	-.026	-.036	-.085	-.113	a-.137	-.151	a-.171	-.167	-.149	-.130	-.101	-.072	a-.039	.017	.017	.011
.750	-.028	.016	a-.011	a-.029	-.011	-.080	a-.077	a-.085	-.080	-.113	a-.119	a-.103	a-.089	a-.074	a-.071	-.031	-.013	-.007	-.029
.850	-.076	-.032	-.016	-.018	-.015	-.032	-.026	a0	-.024	-.044	-.061	-.047	-.042	-.041	-.030	-.014	-.008	-.014	-.041
.925	-.086	-.020	.018	.017	.007	.003	.015	a.072	.016	.023	.025	.008	-.009	-.006	.027	-.006	-.004	-.009	-.039
.975	a-.065	.067	.136	.144	.097	.068	.092	.126	.128	.137	.133	.127	.106	.099	.092	.079	.094	.099	.065
a1.000	.051	.184	.305	.324	.273	.242	.236	.226	.401	.250	.276	.411	.402	.375	.227	.455	.558	.560	.574

a Faired value.

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) - Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.55°.

J	1.965	2.056	2.139	2.236	2.340	2.435	2.399	2.305	2.180	2.101	2.006
M_r	.668	.685	.701	.720	.740	.759	.750	.729	.705	.686	.669
α_r'	4.60	3.32	2.18	.93	-.33	-1.46	-1.03	.08	1.66	2.69	4.03
$\Delta\beta$	.27	.26	.25	.24	.22	.21	.22	.23	.24	.25	.26
α_1	1.79	1.47	1.18	.78	.42	.07	.18	.46	.96	1.24	1.56
c_n	.6362	.5246	.4220	.2801	.1505	.0259	.0662	.1667	.3432	.4428	.5577
c_m	-.0384	-.0353	-.0365	-.0436	-.0501	-.0566	-.0589	-.0488	-.0405	-.0365	-.0317
c_o	-.0361	-.0259	-.0192	-.0093	-.0052	-.0052	-.0001	-.0009	-.0059	-.0143	-.0241

c/b	Pressure coefficient, P										
Upper surface											
0.000	1.116	1.123	1.130	1.137	1.145	1.153	1.149	1.141	1.131	1.124	1.117
.025	-1.348	-.912	-.602	-.254	.005	.201	.195	.106	-.272	-.537	-.861
.050	-.974	-.762	-.528	-.262	-.057	.122	.090	-.071	-.372	-.587	-.852
.100	-.920	-.740	-.560	-.358	-.193	-.045	-.087	-.223	-.461	-.618	-.815
a.200	-.825	-.706	-.592	-.462	-.356	-.243	-.265	-.374	-.531	-.627	-.754
.300	-.729	-.664	-.590	-.501	-.415	-.328	-.353	-.431	-.548	-.615	-.687
.400	-.653	-.611	-.567	-.510	-.450	-.388	-.405	-.458	-.536	-.583	-.626
.500	-.593	-.570	-.545	-.515	-.481	-.443	-.452	-.458	-.528	-.555	-.579
.600	-.542	-.531	-.525	-.515	-.502	-.494	-.495	-.505	-.518	-.531	-.554
.700	-.441	-.444	-.453	-.455	-.455	-.462	-.458	-.455	-.451	-.454	-.448
.800	-.260	-.272	-.288	-.299	-.309	-.316	-.311	-.307	-.293	-.289	-.271
.900	-.003	-.009	-.021	-.030	-.045	-.056	-.050	-.041	-.026	-.023	-.012
.950	.078	.128	.121	.086	.092	.081	.084	.084	.087	.085	.080
Lower surface											
.0375	.517	.326	.180	-.018	-.259	-.758	-.540	-.215	.113	.255	.397
.075	.325	.211	.089	-.073	-.231	-.396	-.359	-.207	.026	.137	.281
.150	.207	.134	.044	-.078	-.193	-.334	-.287	-.168	-.006	.073	.164
.250	.131	.071	.001	-.095	-.180	-.286	-.248	-.163	-.037	.022	.095
.350	.062	.011	-.051	-.130	-.199	-.284	-.252	-.183	-.081	-.030	.034
.450	.018	-.025	-.081	-.144	-.197	-.267	-.242	-.185	-.102	-.058	-.006
.550	-.025	-.060	-.100	-.158	-.207	-.263	-.239	-.196	-.125	-.092	-.045
.650	-.055	-.083	-.116	-.160	-.196	-.239	-.223	-.193	-.137	-.110	-.074
.750	-.041	-.058	-.084	-.114	-.134	-.158	-.150	-.132	-.098	-.080	-.051
.850	.015	.005	-.014	-.028	-.035	-.043	-.047	-.068	-.098	-.098	-.083
.925	.021	.020	.024	.026	.035	.041	.035	.023	.017	.015	.016
.975	.035	.054	.066	.084	.098	.115	.109	.094	.069	.055	.039
a1.000	.232	.333	.383	.261	.309	.276	.302	.276	.255	.227	.228

a Faired value.

NACA

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) - Continued

(1) M = 0.56; $\beta_{0.75R}$ = 44.55°

J	2.034	2.071	2.099	2.155	2.187	2.254	2.272	2.330	2.387	2.438	2.523
M_x	.774	.764	.759	.755	.746	.740	.738	.727	.720	.712	.709
α_x'	3.62	3.11	2.72	1.98	1.56	.71	.48	-.23	-.90	-1.49	-2.44
$\Delta\beta$	.32	.31	.30	.28	.27	.25	.25	.23	.21	.20	.17
α_1	1.41	1.40	1.31	1.15	1.02	.82	.75	.57	.41	.27	.07
c_n	.5019	.5010	.4698	.4118	.3668	.2940	.2699	.2073	.1499	.0992	.0237
c_m	-.0480	-.0472	-.0457	-.0465	-.0459	-.0498	-.0519	-.0573	-.0643	-.0667	-.0730
c_c	-.0111	-.0132	-.0175	-.0128	-.0093	-.0066	-.0067	-.0011	.0026	-.0005	.0002
c/b	Pressure coefficient, P										
Upper surface											
0.000	1.159	1.155	1.153	1.151	1.148	1.145	1.144	1.140	1.137	1.134	1.133
.025	-.503	-.535	-.551	-.463	-.388	-.222	-.187	-.076	.048	.130	.250
.050	-.559	-.575	-.527	-.432	-.371	-.248	-.209	-.132	-.030	.050	.155
.100	-.584	-.596	-.556	-.475	-.430	-.325	-.298	-.229	-.145	-.083	.005
a.200	-.660	-.630	-.625	-.566	-.525	-.444	-.420	-.355	-.303	-.269	-.197
.300	-.731	-.712	-.674	-.637	-.602	-.523	-.502	-.450	-.389	-.345	-.282
.400	-.764	-.762	-.707	-.642	-.603	-.538	-.519	-.478	-.427	-.389	-.339
.500	-.746	-.741	-.694	-.640	-.607	-.558	-.540	-.508	-.467	-.436	-.396
.600	-.711	-.708	-.661	-.613	-.594	-.564	-.552	-.533	-.504	-.480	-.451
.700	-.458	-.474	-.480	-.483	-.490	-.489	-.487	-.486	-.478	-.469	-.455
.800	-.232	-.254	-.267	-.279	-.298	-.314	-.318	-.335	-.350	-.358	-.366
.900	.015	.009	.007	.003	-.012	-.028	-.032	-.053	-.071	-.088	-.111
.950	.094	.089	.093	.100	.094	.098	.097	.087	.080	.072	.054
Lower surface											
.0375	.318	.282	.237	.158	.094	-.031	-.066	-.179	-.323	-.458	-.685
.075	.186	.156	.123	.061	.005	-.085	-.109	-.187	-.270	-.339	-.446
.150	.109	.085	.058	.015	-.025	-.091	-.104	-.158	-.211	-.263	-.340
.250	.037	.016	-.001	-.033	-.064	-.112	-.122	-.162	-.200	-.234	-.285
.350	-.018	-.036	-.049	-.074	-.100	-.138	-.144	-.173	-.200	-.226	-.264
.450	-.054	-.068	-.078	-.098	-.120	-.146	-.151	-.175	-.193	-.210	-.236
.550	-.096	-.108	-.113	-.127	-.147	-.167	-.167	-.183	-.193	-.204	-.222
.650	-.123	-.134	-.133	-.140	-.154	-.167	-.167	-.176	-.177	-.183	-.192
.750	-.094	-.102	-.099	-.100	-.110	-.114	-.114	-.113	-.109	-.109	-.110
.850	-.057	-.060	-.054	-.049	-.056	-.051	-.047	-.043	-.030	-.025	-.019
.925	.005	.003	.011	.020	.016	.030	.036	.041	.057	.066	.077
.975	.042	.045	.056	.068	.067	.085	.091	.101	.113	.119	.136
a1.000	.120	.120	.120	.142	.150	.175	.185	.160	.200	.195	.175

aFaired value.

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) - Continued

(j) M = 0.60; $\beta_{0.75R}$ = 44.55°.

J	2.036	2.070	2.112	2.152	2.183	2.223	2.245	2.308	2.358	2.393	2.440
M_x	.833	.822	.815	.808	.799	.793	.787	.779	.778	.770	.768
α_x'	3.59	3.12	2.55	2.02	1.61	1.10	.82	.04	-.56	-.97	-1.51
$\Delta\beta$	.34	.33	.32	.30	.29	.28	.27	.25	.23	.22	.21
α_1	1.18	1.22	1.15	1.05	.92	.80	.70	.57	.42	.28	.13
c_n	.4212	.4341	.4096	.3753	.3295	.2875	.2500	.2067	.1505	.1014	.0481
c_m	-.0535	-.0562	-.0575	-.0570	-.0506	-.0499	-.0501	-.0637	-.0595	-.0632	-.0655
c_0	.0112	.0078	.0043	.0031	.0010	-.0033	-.0025	.0017	-.0035	-.0025	-.0027

x/b	Pressure coefficient, P										
Upper surface											
0.000	1.185	1.180	1.177	1.174	1.170	1.167	1.164	1.161	1.161	1.158	1.156
.025	-.229	-.260	-.276	-.288	-.254	-.181	-.122	-.012	.059	.126	.194
.050	-.347	-.373	-.339	-.300	-.246	-.184	-.141	-.057	-.002	.055	.124
.100	-.407	-.427	-.406	-.377	-.338	-.287	-.252	-.181	-.135	-.088	-.029
a.200	-.539	-.551	-.518	-.477	-.440	-.431	-.419	-.352	-.323	-.282	a-.230
.300	-.645	-.657	-.613	-.573	-.543	-.530	-.518	-.457	-.422	-.384	-.336
.400	-.699	-.716	-.691	-.675	-.646	-.588	-.564	-.504	-.473	-.441	-.398
.500	-.744	-.763	-.746	-.716	-.676	-.633	-.605	-.560	-.536	-.504	-.468
.600	-.824	-.853	-.831	-.803	-.769	-.721	-.685	-.625	-.604	-.575	-.538
.700	-.609	-.638	-.717	-.736	-.663	-.594	-.568	-.530	-.529	-.525	-.509
.800	-.293	-.271	-.238	-.221	-.227	-.243	-.265	-.473	-.312	-.337	-.347
.900	-.205	-.157	-.087	-.037	-.008	.017	.010	-.008	-.019	-.040	-.055
.950	-.112	-.103	-.050	-.002	.040	.080	.092	.097	.102	.095	.090
Lower surface											
.0375	.229	.212	.158	.114	.041	-.022	-.086	-.206	-.307	-.472	-.746
.075	.128	.112	.062	.024	-.029	-.080	-.127	-.211	-.269	-.338	-.398
.150	.058	.045	.010	-.017	-.058	-.089	-.122	-.180	-.218	-.272	-.328
.250	-.004	.015	-.038	-.056	-.089	-.110	-.135	-.175	-.204	-.242	-.282
.350	a-.060	-.079	-.098	-.112	-.138	-.152	-.172	-.199	a-.209	a-.230	a-.265
.450	-.114	-.120	-.134	-.144	-.165	-.172	-.185	-.204	-.220	-.240	-.259
.550	-.172	-.174	-.184	-.187	-.202	-.201	-.209	-.216	-.229	-.241	-.254
.650	-.224	-.224	-.221	-.216	-.220	-.211	-.214	-.211	-.216	-.222	-.226
.750	-.207	-.201	-.190	-.178	-.171	-.154	-.150	-.140	-.140	-.141	-.140
.850	-.187	-.174	-.149	-.127	-.111	-.085	-.079	-.062	-.053	-.049	-.042
.925	-.146	-.122	-.084	-.054	-.033	0	.010	.033	.046	.052	.059
.975	-.153	-.116	-.061	-.020	.010	.048	.064	.091	.105	.111	.121
a1.000	.012	.030	.070	.060	.300	.200	.240	.250	.275	.290	.275

aFaired value.

NACA

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(09.05) PROPELLER BLADE SECTION (x = 0.60) — Concluded

(k) M = 0.65; $\beta_{0.75R}$ = 44.55°.

J	2.035	2.067	2.101	2.135	2.171	2.200	2.239	2.285	2.311	2.350	2.385
M_x	.919	.912	.903	.897	.886	.878	.868	.861	.849	.849	.844
α_x'	3.61	3.16	2.70	2.24	1.77	1.39	.89	.33	0	-.47	-.88
$\Delta\beta$	.41	.40	.38	.37	.35	.34	.33	.31	.30	.28	.27
α_1	.86	.86	.72	.64	.55	.49	.40	.29	.19	.07	-.02
c_n	.3049	.3088	.2552	.2300	.1982	.1776	.1448	.1056	.0667	.0266	-.0065
c_m	-.0403	-.0390	-.0350	-.0292	-.0302	-.0364	-.0390	-.0433	-.0461	-.0476	-.0548
c_c	.0367	.0371	.0362	.0300	.0281	.0278	.0253	.0267	.0206	.0168	.0117

	c/b	Pressure coefficient, P										
Upper surface	0.000	1.229	1.225	1.222	1.218	1.212	1.207	1.202	1.199	1.193	1.193	1.191
	.025	-.031	-.022	-.026	-.026	.029	.076	.134	.180	.222	.271	.320
	.050	-.092	-.094	-.101	-.075	-.034	.001	.048	.086	.119	.158	.202
	.100	-.209	-.198	-.185	-.152	-.121	-.095	-.061	-.030	-.001	ª.029	.070
	ª.200	-.361	-.360	-.321	-.290	-.265	-.235	-.218	-.185	-.170	-.179	-.125
	.300	-.474	-.466	-.446	-.404	-.373	-.352	-.326	-.316	-.309	-.306	-.278
	.400	-.543	-.543	-.530	-.488	-.465	-.456	-.452	-.437	-.410	-.389	-.355
	.500	-.596	-.603	-.588	-.551	-.535	-.533	-.513	-.492	-.474	-.463	-.426
	.600	-.682	-.686	-.679	-.662	-.658	-.656	-.657	-.622	-.597	-.584	-.547
	.700	-.784	-.795	-.795	-.765	-.762	-.757	-.749	-.740	-.722	-.716	-.682
	.800	-.470	-.435	-.373	-.356	-.295	-.273	-.280	-.244	-.197	-.158	-.162
	.900	-.376	-.358	-.313	-.257	-.212	-.186	-.178	-.169	-.143	-.090	-.014
	.950	-.282	-.302	-.291	-.225	-.186	-.160	-.133	-.118	-.099	-.061	.014
Lower surface	.0375	.194	.184	.140	.082	.033	-.018	-.096	-.180	-.261	-.388	-.543
	.075	.092	.088	.053	.002	-.032	-.070	-.126	-.176	-.219	-.265	-.334
	.150	.046	.056	.018	-.020	-.045	-.072	-.133	-.153	-.183	-.225	-.263
	.250	-.015	-.012	-.036	-.062	-.076	-.097	-.127	-.160	-.182	-.214	-.242
	.350	-.078	-.076	-.097	-.115	-.129	-.145	-.171	-.199	-.215	-.242	-.258
	.450	-.122	-.133	-.139	-.150	-.160	-.173	-.197	-.217	-.227	-.246	-.253
	.550	-.179	-.159	-.190	-.204	-.213	-.226	-.244	-.261	-.268	-.281	-.281
	.650	-.291	-.288	-.303	-.314	-.322	-.332	-.349	-.362	-.363	-.360	-.324
	.750	-.348	-.347	-.361	-.363	-.365	-.361	-.364	-.339	-.301	-.253	-.189
	.850	-.413	-.414	-.424	-.390	-.365	-.315	-.266	-.212	-.166	-.125	-.068
	.925	-.427	-.427	-.421	-.315	-.256	-.195	-.148	-.104	-.067	-.028	.031
	.975	-.396	-.428	-.407	-.257	-.203	-.154	-.104	-.064	-.037	.001	.071
	ª1.000	-.110	-.200	-.215	-.130	-.100	-.060	-.025	.015	.030	.050	.130

ªFaired value.

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.38°.

J	0.691	0.776	0.866	0.957	1.053	1.150	1.249	1.349	1.475	1.413	1.301	1.205	1.094	1.001	0.901	0.815	0.749
M_x	.381	.390	.399	.401	.422	.424	.436	.453	.461	.454	.442	.430	.421	.415	.404	.391	.377
α_x'	13.92	11.92	9.86	7.84	5.77	3.75	1.77	-.17	-2.49	-1.37	.75	2.64	4.91	6.89	9.08	11.02	12.55
$\Delta\beta$	.17	.17	.17	.17	.16	.16	.15	.15	.14	.14	.15	.15	.16	.17	.17	.17	.17
α_1	3.09	2.94	2.70	2.41	2.07	1.47	1.01	.51	0	.22	.67	1.23	1.67	2.14	2.58	2.85	3.04
c_n	.9259	.9057	.8503	.7739	.6715	.4843	.3346	.1709	.0006	.0757	.2242	.4087	.5437	.6908	.8194	.8884	.9317
c_m	-.0598	-.0495	-.0272	-.0277	-.0333	-.0485	-.0532	-.0568	-.0602	-.0656	-.0563	-.0491	-.0480	-.0419	-.0274	-.0221	-.0439
c_c	-.0399	-.0477	-.0562	-.0551	-.0476	-.0226	-.0086	.0032	.0070	.0070	-.0011	-.0077	-.0145	-.0376	-.0547	-.0612	-.0520
c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.037	1.039	1.041	1.041	1.046	1.046	1.049	1.053	1.054	1.053	1.050	1.047	1.045	1.044	1.042	1.039	1.036
.025	-1.847	-1.969	-2.050	-1.996	-1.909	a-.910	a-.426	a.101	a.440	-.127	a-.661	a-.895	a-1.088	-1.565	-1.995	-2.112	-2.189
.050	-1.660	-1.662	-1.881	-1.842	-1.763	-.811	-.444	-.187	.090	.077	a-.263	a-.711	a-1.088	-1.396	-1.877	-1.962	-2.023
.100	-1.066	-1.168	-1.298	-1.211	-.873	-.641	-.439	-.257	-.039	-.116	-.295	-.478	-.728	-.898	-1.324	-1.432	-1.198
a.200	-.924	-.950	-.983	-.771	-.649	-.514	-.414	-.284	-.122	-.191	-.315	-.407	-.557	-.659	-.916	-1.018	-.986
.300	-.854	-.815	-.788	-.636	-.573	-.481	-.388	-.305	-.187	-.237	-.324	-.393	-.524	-.612	-.713	-.789	-.853
.400	-.705	-.684	-.601	-.554	-.520	-.456	-.388	-.332	-.239	-.271	-.341	-.381	-.486	-.548	-.576	-.608	-.704
.500	-.617	-.587	-.501	-.505	-.491	-.453	-.403	-.363	-.286	-.315	-.365	-.387	-.473	-.514	-.513	-.503	-.589
.600	-.515	-.488	-.406	-.429	-.442	-.419	-.388	-.363	-.308	-.329	-.371	-.372	-.441	-.466	-.440	-.414	-.474
.700	-.416	-.394	-.322	-.351	-.369	-.369	-.352	-.343	-.302	-.315	-.338	-.326	-.376	-.382	-.350	-.314	-.383
.800	-.335	-.311	-.224	-.239	-.264	-.283	-.290	-.291	-.267	-.273	-.280	-.251	-.284	-.271	-.243	-.222	-.300
.900	-.258	-.238	-.119	-.078	-.073	-.089	-.104	-.118	-.119	-.116	-.113	-.069	-.085	-.084	-.103	-.133	-.230
.950	-.193	-.211	-.102	-.009	.023	.026	.014	-.003	-.001	-.001	.004	.046	.022	.010	-.032	-.085	-.189
Lower surface																	
.0375	.870	.832	.779	.700	.577	.359	.103	-.191	-.533	-.384	-.090	.248	.459	.629	.738	.818	.849
.075	.700	.653	.600	.530	.414	.242	.053	-.156	-.374	-.273	-.084	.164	.314	.458	.555	.633	.675
.150	.527	.480	.434	.372	.285	.152	.023	-.107	-.250	-.175	-.058	.112	.214	.315	.395	.461	.497
.250	.372	.328	.292	.247	.172	.065	-.051	-.150	-.239	-.192	-.107	.037	.116	.205	.262	.321	.347
.350	.298	.266	.236	.198	.134	.056	-.021	-.101	-.171	-.131	-.067	.043	.090	.159	.208	.253	.278
.450	.248	.221	.195	.172	.119	.056	-.006	-.076	-.130	-.096	-.045	.052	.081	.140	.172	.212	.232
.550	.128	.107	.094	.076	.032	-.024	-.075	-.130	-.165	-.142	-.104	-.021	-.001	.042	.074	.100	.111
.650	.072	.051	.049	.044	.010	-.033	-.069	-.118	-.141	-.121	-.096	-.024	-.020	.017	.035	.052	.055
a.750	.033	.019	.034	.036	.021	-.010	.041	-.080	-.087	-.068	-.051	.005	0	.023	.029	.032	.021
.850	.004	-.003	.033	.050	.042	.026	.008	-.020	-.009	-.004	.004	.049	.028	.046	.035	.024	-.001
a.925	.005	-.005	.046	.074	.082	.082	.083	.059	.070	.085	.074	.112	.082	.078	.058	.035	0
.975	.043	.035	.088	.183	.144	.165	.163	.141	.150	.191	.147	.183	.147	.138	.110	.080	.040
a1.000	.136	.117	.179	.302	.237	.276	.264	.232	.250	.301	.242	.285	.226	.228	.209	.170	.140

aFaired value.

NACA

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) - Continued

(b) $N = 1350$ rpm; $\beta_{0.75R} = 29.38°$.

J	0.701	0.772	0.855	0.932	1.002	1.098	1.180	1.271	1.356	1.459	1.404	1.307	1.221	1.133	1.047	0.964	0.882	0.809	0.741
M_x	.461	.458	.484	.486	.493	.508	.515	.525	.535	.553	.542	.529	.519	.514	.497	.487	.485	.474	.458
$\alpha_x{}'$	13.68	12.02	10.11	8.40	6.87	4.83	3.15	1.33	-.29	-2.21	-1.20	.64	2.32	4.10	5.90	7.69	9.50	11.16	12.74
$\Delta\beta$	.24	.24	.24	.23	.23	.22	.21	.21	.20	.19	.20	.20	.21	.22	.23	.23	.24	.24	.24
α_1	3.33	3.11	2.76	2.56	2.24	1.91	1.48	1.00	.54	.18	.31	.73	1.13	1.57	1.96	2.34	2.64	2.90	3.27
c_n	1.0110	.9636	.8713	.8165	.7253	.6263	.4894	.3339	.1796	.0527	.1045	.2437	.3741	.5126	.6351	.7518	.8365	.9005	1.0027
c_m	-.0674	-.0558	-.0338	-.0325	-.0494	-.0393	-.0450	-.0554	-.0592	-.0641	-.0588	-.0569	-.0549	-.0505	-.0481	-.0390	-.0298	-.0333	-.0485
c_c	-.0268	-.0310	-.0397	-.0392	-.0314	-.0322	-.0261	-.0053	.0071	.0070	.0062	.0018	-.0015	-.0110	-.0214	-.0318	-.0389	-.0401	-.0395

c/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.055	1.054	1.060	1.059	1.062	1.066	1.068	1.071	1.073	1.078	1.075	1.072	1.069	1.068	1.063	1.061	1.060	1.058	1.054
.025	-1.509	-1.507	-1.902	-1.900	-1.837	-1.759	a-1.186	a-.389	a.302	a.450	a.306	-.156	-.417	-.807	-1.316	-1.702	-1.810	-1.888	-1.937
.050	-1.704	-1.745	-2.005	-1.984	-1.922	-1.105	-.775	-.432	-.181	.051	.030	a-.322	a-.605	a-.850	a-1.366	-1.748	-1.968	-2.060	-2.125
.100	-1.543	-1.584	-1.409	-1.406	-1.023	-.846	-.661	-.454	-.273	-.091	-.179	-.349	-.528	-.719	-.894	-1.189	-1.535	-1.487	-1.615
a.200	-1.282	-1.297	-1.080	-.948	-.769	-.662	-.555	-.429	-.301	-.185	-.248	-.353	-.470	-.591	-.684	-.769	-.980	-1.080	-1.257
.300	-1.048	-1.053	-.867	-.725	-.656	-.581	-.502	-.410	-.318	-.227	-.277	-.361	-.446	-.528	-.612	-.666	-.776	-.860	-.984
.400	-.802	-.794	-.659	-.598	-.584	-.532	-.480	-.412	-.341	-.271	-.309	-.376	-.435	-.490	-.553	-.588	-.620	-.665	-.741
.500	-.668	-.630	-.527	-.531	-.542	-.508	-.477	-.430	-.378	-.325	-.357	-.406	-.451	-.486	-.528	-.540	-.527	-.547	-.616
.600	-.541	-.488	-.421	-.442	-.477	-.461	-.461	-.419	-.382	-.342	-.366	-.406	-.435	-.448	-.476	-.471	-.431	-.437	-.498
.700	-.454	-.389	-.327	-.356	-.392	-.390	-.390	-.382	-.354	-.329	-.349	-.376	-.387	-.388	-.397	-.377	-.339	-.345	-.415
.800	-.380	-.307	-.237	-.242	-.275	-.282	-.300	-.310	-.298	-.289	-.300	-.310	-.306	-.289	-.287	-.259	-.232	-.258	-.345
.900	-.302	-.236	-.140	-.099	a-.134	-.072	-.094	-.113	-.115	-.118	-.123	-.123	-.111	-.083	-.084	-.087	-.111	-.173	-.272
.950	-.257	-.205	-.095	-.030	a-.039	.030	.095	.011	.009	.003	-.002	0	.010	.037	.016	-.002	-.059	-.133	-.246
Lower surface																			
.0375	.859	.824	.796	.727	.644	.520	.328	.084	-.173	-.502	-.355	-.079	.178	.412	.566	.688	.763	.817	.846
.075	.692	.656	.622	.550	.469	.359	.211	.031	-.145	-.339	-.264	-.086	.097	.281	.399	.511	.585	.635	.676
.150	.521	.490	.452	.402	.343	.254	.135	.009	-.100	-.235	-.177	-.062	.055	.181	.272	.362	.422	.487	.499
.250	.354	.326	.298	.243	.182	.114	.018	-.074	-.151	-.241	-.207	-.123	-.038	.066	.138	.225	.278	.316	.343
.350	.284	.264	.245	.210	.164	.110	.035	-.035	-.100	-.171	-.143	-.081	-.010	.070	.124	.187	.225	.252	.273
.450	.228	.214	.202	.168	.142	.095	.035	-.024	-.073	-.131	-.110	-.062	-.001	.064	.109	.160	.190	.210	.225
.550	.130	.117	.110	.094	.059	.015	-.037	-.083	-.123	-.166	-.153	-.116	-.072	-.017	.016	.059	.082	.092	.104
.650	.051	.049	.050	.042	.025	.001	-.046	-.083	-.115	-.141	-.136	-.112	-.074	-.031	-.005	.030	.039	.041	.043
a.750	-.018	0	.021	.031	.028	.012	-.001	.071	-.089	-.084	-.088	-.079	-.053	-.026	.003	.027	.026	.018	.003
.850	-.022	-.009	.026	.049	.047	.039	.016	.002	-.006	a.010	-.019	-.011	.001	.022	.026	.040	.024	.005	-.022
a.925	-.013	0	.038	.067	.070	.067	.060	.094	.085	.109	.052	.067	.072	.102	.073	.067	.041	.018	-.013
a.975	.027	.043	.082	.105	.117	.116	.122	.169	.156	.187	.126	.146	.144	.184	.164	.128	.084	.057	.027
a1.000	.109	.129	.158	.188	.197	.205	.285	.283	.262	.250	.201	.227	.229	.271	.278	.208	.158	.159	.108

aFaired value.

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) - Continued

(c) N = 1600 rpm; $\beta_{0.75R}$ = 29.38°.

J	0.733	0.806	0.866	0.963	1.070	1.183	1.296	1.414	1.518	1.432	1.331	1.225	1.125	1.016	0.904	0.834	0.758
M_x	.547	.560	.565	.581	.595	.610	.621	.641	.655	.641	.628	.616	.597	.586	.567	.558	.547
α_x'	12.93	11.23	9.86	7.71	5.41	3.08	.85	-1.39	-3.25	-1.71	.17	2.24	4.27	6.56	9.02	10.59	12.34
$\Delta\beta$	.32	.32	.32	.31	.31	.30	.29	.28	.28	.28	.29	.30	.30	.31	.32	.32	.32
α_1	3.09	3.10	2.89	2.55	2.12	1.55	.98	.36	-.08	.23	.70	1.27	1.70	2.32	2.85	3.09	3.42
c_n	.9422	.9669	.9156	.8196	.6909	.5137	.3248	.1212	-.0277	.0770	.2325	.4190	.5565	.7494	.9055	.9729	1.0578
c_m	-.1305	-.0670	-.0413	-.0358	-.0422	-.0547	-.0589	-.0624	-.0663	-.0660	-.0604	-.0511	-.0464	-.0326	-.0184	-.0288	-.0552
c_c	.0290	-.0095	-.0214	-.0261	-.0408	-.0189	-.0114	-.0029	.0058	.0018	-.0023	-.0151	-.0184	-.0500	-.0656	-.0613	-.0531

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.077	1.080	1.082	1.087	1.091	1.096	1.099	1.107	1.112	1.107	1.102	1.098	1.092	1.088	1.082	1.080	1.077
.025	-.015	-.482	-.738	-1.398	-1.499	a-.830	a-.377	a.057	.330	a.240	a-.015	a-.488	-.724	-1.901	-2.019	-2.061	-2.107
.050	-.994	-1.465	-1.681	-2.079	-1.230	-.793	-.399	-.065	.159	.092	-.170	-.530	-.808	-1.651	-1.930	-1.940	-1.634
.100	-.987	-1.493	-1.656	-1.550	-.968	-.693	-.411	-.150	.031	-.095	-.306	-.566	-.792	-1.036	-1.663	-1.550	-1.482
a.200	-.971	-1.387	-1.419	-.980	-.778	-.601	-.410	-.228	-.096	-.197	-.352	-.516	-.661	-.797	-1.174	-1.272	-1.311
.300	-.989	-1.144	-1.044	-.736	-.658	-.540	-.418	-.283	-.184	-.253	-.369	-.480	-.581	-.682	-.853	-1.070	-1.157
.400	-.884	-.904	-.779	-.641	-.600	-.518	-.434	-.331	-.253	-.302	-.391	-.471	-.543	-.611	-.656	-.811	-.943
.500	-.841	-.717	-.593	-.569	-.558	-.504	-.444	-.369	-.309	-.350	-.413	-.475	-.525	-.562	-.604	-.624	-.778
.600	-.788	-.560	-.457	-.493	-.506	-.478	-.439	-.389	-.347	-.378	-.420	-.461	-.495	-.509	-.441	-.474	-.625
.700	-.731	-.447	-.356	-.396	-.425	-.419	-.409	-.379	-.350	-.371	-.398	-.418	-.428	-.419	-.348	-.366	-.506
.800	a-.671	a-.342	-.267	a-.240	a-.269	a-.287	a-.315	a-.301	a-.285	a-.299	-.312	a-.302	a-.286	-.227	-.257	-.267	-.387
.900	-.585	-.258	-.165	-.093	-.083	-.086	-.126	-.128	-.137	-.133	-.136	-.105	-.093	-.090	-.114	-.172	-.296
.950	-.549	-.233	-.128	-.021	.010	.034	.011	.002	-.014	-.002	0	.029	.020	.008	-.055	-.125	-.247
Lower surface																	
.0375	.823	.825	.788	.704	.532	.337	.019	-.407	-.674	-.503	-.129	.224	.440	.619	.718	.778	.830
.075	.652	.647	.610	.546	.443	.221	-.020	-.898	-.514	-.360	-.127	.126	.290	.488	.607	.630	.668
.150	.483	.474	.440	.382	.281	.141	a-.029	-.189	-.342	-.225	-.089	.077	.192	.328	.416	.452	.489
.250	.363	.361	.329	.271	.189	.078	-.039	-.161	-.267	-.186	-.087	.035	.121	.231	.301	.332	.360
.350	.266	.266	.243	.204	.134	.045	-.046	-.145	-.224	-.165	-.087	.008	.079	.171	.227	.251	.270
.450	.186	.194	.178	.150	.090	.014	-.056	-.122	-.184	-.137	-.080	-.011	.043	.120	.168	.182	.195
.550	.088	.105	.100	.081	.034	-.019	-.073	-.141	-.187	-.151	-.100	-.042	-.003	.064	.097	.103	.107
.650	.009	.043	.044	.040	.005	-.038	-.082	-.132	-.161	-.140	-.107	-.056	-.030	.028	.046	.044	.039
.750	-.056	a-.004	.011	a.023	a.004	a-.019	a-.041	a-.077	a-.096	-.051	-.082	a-.044	a-.020	a.012	a.015	a.011	a-.010
.850	-.117	-.029	-.003	.032	.024	.014	.009	-.009	-.011	-.011	-.003	.010	.008	.038	.018	-.010	-.040
.925	-.215	-.072	-.032	.028	.033	.032	.051	.047	.056	.046	.043	.037	.025	.049	0	-.040	-.090
.975	-.356	-.112	-.038	.072	.106	a.148	.123	.136	.156	.130	.094	.069	.030	.009	-.018	-.047	-.120
a1.000	-.108	-.021	.032	.146	.247	.255	.244	.251	.300	.245	.252	.259	.215	.228	.367	.053	0

aFaired value.

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) - Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.38°.

J	1.025	1.096	1.155	1.211	1.283	1.345	1.403	1.377	1.303	1.247	1.177	1.121	1.058
M_x	.749	.760	.767	.776	.786	.797	.804	.803	.787	.781	.770	.761	.753
a_x'	6.37	4.86	3.65	2.52	1.10	-.09	-1.19	-.69	.72	1.81	3.20	4.35	6.07
$\Delta\beta$	.49	.48	.47	.46	.44	.43	.42	.42	.44	.45	.47	.48	.49
α_1	2.65	2.31	1.85	1.42	.99	.62	.15	.28	.76	1.20	1.63	1.98	2.41
c_n	.8631	.7544	.6076	.4696	.3301	.2065	.0496	.0929	.2535	.3970	.5391	.6485	.7823
c_m	-.0523	-.0502	-.0562	-.0582	-.0596	-.0635	-.0616	-.0605	-.0599	-.0541	-.0505	-.0498	-.0484
c_c	-.0371	-.0313	-.0202	-.0058	.0085	.0074	.0086	.0092	-.0025	-.0041	-.0160	-.0218	-.0300
c/b	Pressure coefficient, P												
Upper surface													
0.000	1.149	1.153	1.156	1.160	1.164	1.169	1.172	1.171	1.164	1.162	1.157	1.154	1.150
.025	-1.147	-1.139	a-.857	a-.335	a.202	a.252	a.541	a.371	a-.145	-.178	-.545	-.711	a-1.056
.050	-1.313	-1.178	a-.838	-.508	-.280	-.113	.044	.045	a-.227	-.271	a-.617	-.857	-1.184
.100	-1.257	-1.092	-.742	-.625	-.446	-.275	-.120	-.143	-.300	-.496	-.658	-.860	-1.126
a.200	-1.239	-1.042	-.746	-.598	-.461	-.351	-.225	-.247	-.361	-.527	-.684	-.865	-1.080
.300	-1.211	-1.009	-.758	-.612	-.493	-.393	-.296	-.325	-.431	-.537	-.695	-.854	-1.006
.400	-.978	-.835	-.742	-.657	-.567	-.481	-.393	-.416	-.505	-.602	-.689	-.772	-.807
.500	-.655	-.763	-.733	-.675	-.608	-.550	-.490	-.508	-.573	-.635	-.699	-.739	-.737
.600	-.548	-.657	-.701	-.710	-.683	-.648	-.588	-.603	-.654	-.691	-.701	-.671	-.598
.700	-.428	-.447	-.449	-.470	-.483	-.527	-.565	-.551	-.516	-.478	-.460	-.443	-.439
.800	-.278	-.279	-.275	-.292	-.299	-.310	-.322	-.318	-.314	-.295	-.282	-.272	-.273
.900	-.031	-.032	-.028	-.035	-.036	-.043	-.050	-.044	-.043	-.034	-.031	-.024	-.026
.950	.080	.055	.058	.062	.069	.071	.069	.070	.064	.066	.060	.063	.069
Lower surface													
.0375	.578	.466	.353	.197	.002	-.226	-.582	-.441	-.154	.103	.296	.419	.525
.075	.438	.336	.246	.124	-.022	-.194	-.411	-.338	-.137	.056	.203	.302	.389
.150	.325	.245	.174	.083	-.023	-.138	-.268	-.218	-.099	.031	.138	.213	.283
.250	.193	.116	.054	-.026	-.113	-.210	-.322	-.285	-.185	-.077	.005	.069	.131
.350	.158	.095	.048	-.014	-.082	-.156	-.242	-.209	-.132	-.046	.023	.076	.129
.450	.133	.076	.038	-.018	-.073	-.138	-.211	-.181	-.115	-.041	.018	.065	.111
.550	.050	-.004	-.039	-.089	-.136	-.191	-.261	-.231	-.174	-.109	-.058	-.016	.025
.650	.005	-.042	-.074	-.113	-.149	-.194	-.247	-.225	-.181	-.128	-.086	-.052	-.014
.750	a.031	a-.033	a-.051	a-.096	a-.120	a-.148	a-.188	a-.176	a-.142	a-.089	a-.068	a-.051	.014
.850	.038	.003	-.008	-.023	-.034	-.047	-.061	-.053	-.043	-.043	-.051	-.034	.088
.925	.045	.016	.019	-.003	-.003	-.003	-.003	-.002	-.009	-.016	-.038	-.015	-.004
a.975	.096	.073	.066	.053	.059	.073	.071	.065	.058	.049	.006	.024	.031
a1.000	.249	.206	.184	.203	.187	.226	.215	.201	.192	.172	.168	.175	.228

aFaired value.

NACA

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) - Continued

(a) N = 2160 rpm; $\beta_{0.75R}$ = 29.38°.

J	1.109	1.177	1.230	1.295	1.349	1.409	1.356	1.320	1.256	1.190	1.135
M_x	.821	.831	.840	.850	.859	.871	.862	.854	.838	.822	.819
α_x'	4.60	3.20	2.14	.86	-.17	-1.28	-.29	.39	1.63	2.94	4.07
$\Delta\beta$	.55	.54	.54	.53	.52	.51	.51	.52	.53	.54	.55
α_1	2.08	1.68	1.24	.83	.46	-.02	.13	.40	.86	1.30	1.80
c_n	.6810	.5556	.4123	.2757	.1541	-.0074	.0436	.1318	.2853	.4296	.5903
c_m	-.0963	-.0844	-.0700	-.0570	-.0445	-.0376	-.0428	-.0487	-.0632	-.0745	-.0825
c_c	-.0471	.0089	.0071	.0086	.0082	.0129	.0159	.0152	.0214	.0140	.0074

c/b	Pressure coefficient, P										
Upper surface											
0.000	1.180	1.184	1.189	1.194	1.198	1.204	1.199	1.195	1.187	1.180	1.179
.025	-.242	-.213	-.193	-.171	-.149	a-.017	a.030	a.111	a.461	a.275	-.215
.050	-.495	-.466	-.440	-.290	-.164	-.037	-.014	-.045	-.056	-.068	-.350
.100	-.703	-.538	-.422	-.302	-.185	-.050	-.070	-.158	-.322	-.439	-.572
a.200	-.810	-.612	-.492	-.376	-.246	-.120	-.174	-.264	-.421	-.567	-.686
.300	-.851	-.691	-.561	-.448	-.333	-.238	-.274	-.343	-.486	-.603	-.719
.400	-.790	-.732	-.608	-.504	-.437	-.347	-.383	-.441	-.536	-.631	-.765
.500	-.860	-.786	-.678	-.597	-.519	-.432	-.461	-.520	-.614	-.692	-.807
.600	-.892	-.815	-.745	-.685	-.628	-.534	-.554	-.600	-.688	-.754	-.835
.700	-.837	-.869	-.833	-.765	-.715	-.655	-.676	-.718	-.783	-.842	-.899
.800	-.318	-.299	-.294	-.320	-.369	-.538	-.467	-.373	-.299	-.275	-.307
.900	-.177	-.160	-.153	-.151	-.147	-.149	-.147	-.143	-.132	-.116	-.162
.950	-.112	-.099	-.096	-.100	-.100	-.108	-.110	-.100	-.079	-.062	-.097
Lower surface											
.0375	.418	.298	.125	-.059	-.237	-.536	-.465	-.255	.019	.204	.343
a.075	.311	.189	.093	-.050	-.188	-.420	-.323	-.201	.005	.144	.247
.150	.219	.142	.046	-.053	-.137	-.290	-.237	-.150	-.017	.081	.171
.250	.143	.079	-.003	-.084	-.149	-.241	-.214	-.151	a-.052	.047	.119
.350	.071	.012	-.058	-.130	-.183	-.256	-.234	-.184	-.094	-.019	.041
.450	.058	.008	-.055	a-.190	a-.229	a-.294	a-.278	a-.227	a-.137	a-.076	a-.020
a.550	-.023	-.080	-.122	-.233	-.275	-.344	-.336	-.280	-.179	-.122	-.071
.650	-.094	-.130	-.187	-.253	-.316	-.401	-.378	-.317	-.217	-.151	-.112
.750	a-.115	a-.138	a-.191	a-.224	a-.330	a-.405	a-.359	a-.308	a-.221	-.142	a-.121
a.850	-.103	-.113	-.144	-.176	-.252	-.297	-.273	-.235	-.170	-.122	-.107
.925	-.061	-.083	-.095	-.114	-.121	-.145	-.143	-.127	-.097	-.082	-.088
.975	.023	.006	.003	0	0	-.009	-.019	-.025	-.034	-.034	-.050
a1.000	.206	.133	.152	.252	.126	.075	.060	.030	0	-.010	-.020

a Faired value.

NACA

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) — Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.46°.

J	1.481	1.599	1.728	1.843	1.969	2.119	2.229	2.355	2.491	2.542	2.376	2.292	2.157	2.024	1.904	1.798	1.656	1.540
M_x	.461	.469	.485	.497	.513	.530	.544	.557	.577	.583	.560	.551	.533	.518	.504	.495	.476	.462
α_x'	12.48	10.42	8.28	6.47	4.60	2.50	1.05	−.52	−2.12	−2.69	−.77	.26	1.99	3.81	5.55	7.17	9.46	11.44
$\Delta\beta$	.18	.18	.17	.17	.16	.15	.15	.14	.13	.13	.14	.14	.15	.16	.17	.17	.18	.18
α_1	3.13	2.97	2.58	2.06	1.67	1.28	1.01	.62	.17	.09	−.33	−.63	.99	1.30	1.63	2.05	2.44	2.73
c_n	1.0989	1.0546	.9225	.7374	.6034	.4660	.3676	.2266	.0627	.0348	.1221	.2312	.3593	.4690	.5857	.7342	.8646	.9631
c_m	−.0386	−.0129	−.0163	−.0385	−.0430	−.0527	−.0522	−.0602	−.0664	−.0656	−.0701	−.0610	−.0550	−.0564	−.0575	−.0475	−.0330	−.0366
c_o	−.0400	−.0576	−.0506	−.0287	−.0257	−.0109	−.0061	.0002	.0075	.0094	.0083	−.0005	−.0023	−.0001	−.0041	−.0184	−.0365	−.0434
o/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.055	1.056	1.060	1.063	1.067	1.072	1.076	1.080	1.086	1.087	1.081	1.078	1.073	1.069	1.065	1.063	1.058	1.055
.025	−.725	a−2.622	a−2.134	a−1.471	a−1.152	−.553	−.350	a.020	.466	a.570	a.361	a−.090	−.371	−.432	−.490	a−1.136	a−1.828	a−1.979
.050	−2.805	−2.672	−2.492	−2.351	−1.091	−.709	−.454	−.197	.087	.149	−.028	−.170	−.402	−.653	−.948	−1.506	−1.775	−1.918
.100	−2.369	−2.229	−2.055	−1.228	−.864	−.676	−.519	−.342	−.136	−.100	−.160	−.234	−.384	−.568	−.767	−1.129	−1.565	−1.728
a.200	−1.586	−1.291	−1.250	−.789	−.655	−.548	−.462	−.321	−.180	−.150	−.235	−.323	−.403	−.529	−.663	−.801	−1.074	−1.283
.300	−1.044	−.900	−.705	−.638	−.563	−.466	−.391	−.311	−.228	−.202	−.286	−.348	−.420	−.510	−.603	−.654	−.784	−.952
.400	−.829	−.710	−.579	−.569	−.523	−.449	−.393	−.331	−.271	−.252	−.320	−.364	−.420	−.487	−.553	−.583	−.647	−.747
.500	−.661	−.567	−.500	−.529	−.500	−.444	−.405	−.356	−.314	−.297	−.358	−.392	−.429	−.478	−.526	−.533	−.551	−.612
.600	a−.534	−.448	−.425	−.476	−.465	−.425	−.397	−.364	−.341	−.327	−.378	−.402	−.425	−.455	−.485	−.471	−.461	−.488
.700	−.412	−.351	−.340	−.397	−.399	−.371	−.358	−.344	−.333	−.323	−.366	−.380	−.384	−.400	−.418	−.390	−.369	−.385
.800	−.316	−.253	−.235	−.288	−.300	−.290	−.291	−.293	−.302	−.293	−.326	−.327	−.315	−.312	−.314	−.279	−.260	a−.288
.900	−.232	−.161	−.093	−.089	−.085	−.079	−.089	−.107	−.124	−.121	−.140	−.136	−.107	−.099	−.097	−.098	−.124	−.191
.950	−.188	−.112	−.026	.009	.028	.046	.043	.026	.002	.004	−.014	−.003	.022	.023	.011	−.008	−.063	−.134
Lower surface																		
.0375	.846	.823	.745	.637	.495	.323	.133	−.129	−.487	−.545	−.382	−.123	.142	.368	.537	.693	.776	.840
.075	.671	.648	.567	.459	.333	.212	.069	−.105	−.333	−.378	−.272	−.115	.074	.285	.373	.509	.594	.644
.150	.498	.474	.408	.317	.223	.135	.037	−.073	−.226	−.252	−.178	−.077	.041	.154	.253	.361	.419	.473
.250	a.370	.355	.302	.223	.153	.084	.018	−.060	−.171	−.185	−.134	−.067	.017	.101	.171	.261	.308	.347
.350	.280	.266	.228	.159	.103	.053	.001	−.060	−.149	−.159	−.128	−.075	−.004	.059	.117	.193	.228	.258
.450	.207	.204	.171	.118	.066	.026	−.013	a−.065	a−.145	a−.147	a−.125	−.085	−.016	.034	.079	.150	.169	.189
.550	.126	.126	.107	.061	.023	−.004	−.032	−.075	−.132	−.136	−.120	−.092	−.043	−.005	.030	.082	.101	.111
.650	.062	.071	.068	.029	.005	−.015	−.039	−.075	−.109	−.115	−.114	−.094	−.052	−.021	.004	.043	.053	.053
.750	.016	.039	.048	.026	.005	−.004	−.020	−.036	−.063	−.068	−.076	−.069	−.039	−.021	.002	.032	.026	.009
.850	−.011	.020	.046	.044	.033	.035	.031	.024	.004	.008	−.004	−.001	.013	.023	.030	.043	.021	−.007
.925	−.056	−.010	.038	.051	.046	.057	.064	.071	.064	.068	.052	.043	.043	.043	.038	.048	.005	−.040
.975	−.109	−.045	.038	.061	.057	.091	.107	.131	.127	.140	.114	.092	.084	.067	.047	.067	−.003	−.067
a1.000	−.133	−.071	.050	.086	.192	.101	.151	.245	.170	.210	.150	.131	.141	.176	.192	.183	.071	−.077

aFaired value.

NACA

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) — Continued

(g) N = 1350 rpm; $\beta_{0.75R}$ = 44.46°.

J	1.563	1.642	1.769	1.873	1.956	2.073	2.185	2.282	2.399	2.502	2.472	2.352	2.222	2.123	2.099	1.858	1.813	1.707	1.593
M_x	.551	.559	.574	.590	.603	.621	.693	.692	.671	.688	.681	.660	.638	.626	.609	.588	.585	.569	.557
α_x'	11.04	9.69	7.63	6.02	4.79	3.13	1.82	.38	-1.05	-2.24	-1.90	-.48	1.14	2.45	4.03	6.32	6.94	8.82	10.52
$\Delta\beta$	.24	.24	.23	.23	.22	.21	.20	.20	.19	.18	.18	.19	.20	.21	.22	.23	.23	.24	.24
α_1	2.73	2.66	2.40	2.14	1.87	1.52	1.20	.90	.55	.13	.19	.41	.84	1.15	1.49	1.98	2.19	2.39	2.66
c_n	.9644	.9428	.8609	.7675	.6798	.5509	.4378	.3297	.2014	.0490	.0703	.1516	.3063	.4160	.5389	.7105	.7839	.8521	.9420
c_m	-.0381	-.0303	-.0289	-.0360	-.0399	-.0454	-.0517	-.0547	-.0686	-.0718	-.0915	-.0729	-.0638	-.0589	-.0544	-.0448	-.0377	-.0314	-.0270
c_c	-.0585	-.0503	-.0559	-.0504	-.0396	-.0258	-.0196	-.0110	-.0039	.0056	.0044	-.0088	-.0042	-.0069	-.0184	-.0350	-.0458	-.0523	-.0558

x/c	Pressure coefficient, P																		
Upper surface																			
0.000	1.078	1.080	1.085	1.089	1.093	1.099	1.104	1.111	1.118	1.124	1.122	1.113	1.105	1.101	1.096	1.089	1.088	1.083	1.080
.025	a-1.860	a-1.653	a-1.585	a-1.618	a-1.361	-.806	-.518	-.243	.077	a.575	.610	a.551	a.005	a-.224	-.574	a-1.272	a-1.775	a-1.619	a-1.676
.050	-1.721	-1.671	-1.614	-1.329	-1.204	-.781	-.527	-.297	-.068	.170	.258	.158	-.196	-.381	.604	-1.133	-1.476	-1.605	-1.718
.100	-1.488	-1.634	-1.533	-1.076	-.887	-.697	-.519	-.351	-.183	-.009	0	-.105	-.286	-.443	.621	-.885	-1.120	-1.413	-1.682
.200	-1.149	-1.168	-.984	-.792	-.684	-.564	-.439	-.351	-.222	-.097	-.122	-.189	-.349	-.443	.590	-.710	-.783	-.992	-1.201
.300	-.887	-.837	-.691	-.611	-.561	-.472	-.385	-.313	-.228	-.147	-.200	-.238	-.332	-.406	.499	-.616	-.644	-.711	-.849
.400	-.695	-.643	-.564	-.532	-.503	-.439	-.381	-.326	-.266	-.207	-.278	-.278	-.352	-.401	.473	-.550	-.561	-.596	-.658
.500	-.574	-.513	-.477	-.469	-.425	-.383	-.345	-.346	-.301	-.260	-.349	-.319	-.375	-.408	.462	-.507	-.504	-.518	-.540
.600	-.457	-.400	-.393	-.421	-.418	-.390	-.367	-.346	-.315	-.292	-.392	-.338	-.375	-.394	.430	-.450	-.435	-.438	-.428
.700	-.352	-.299	-.295	-.329	-.335	-.322	-.313	-.303	-.288	-.280	-.376	-.313	-.332	-.340	.363	-.360	-.339	-.340	-.329
.800	-.256	-.202	-.178	-.198	-.213	-.218	-.223	-.300	-.225	-.232	-.313	-.256	-.257	-.252	.256	-.229	-.209	-.214	-.223
.900	-.155	-.103	-.028	.010	.016	.015	.010	-.003	-.006	-.021	-.037	-.036	-.085	-.014	.016	-.004	-.013	-.046	-.107
.950	-.102	-.054	.047	.104	.122	.138	.143	.137	.136	.122	.147	.107	.112	.119	.107	.092	.076	.030	-.051
Lower surface																			
.0375	.866	a.830	.799	.707	.605	.472	.293	.088	-.145	-.482	-.646	-.221	.074	.283	.452	.689	.749	.799	.857
.075	.680	.688	.625	.538	.451	.344	.209	.062	-.083	-.289	-.380	-.136	.046	.195	.318	.514	.568	.612	.674
.150	.515	.519	.471	.399	.331	.252	.160	.066	-.031	-.170	-.219	-.061	.056	.151	.232	.379	.420	.453	.502
.250	.392	.404	.367	.307	.253	.197	.130	.062	-.006	-.106	-.141	-.033	.051	.121	.178	.291	.326	.346	.383
.350	.304	.315	.282	.244	.202	.155	.107	.050	-.003	-.080	-.110	-.030	.034	.091	.135	.225	.253	.271	.297
.450	.240	.251	.224	.193	.157	.124	.084	a.050	.009	-.052	-.070	-.009	.038	.177	.110	.184	.204	.214	.231
.550	.161	.171	.174	.140	.108	.083	.056	.018	-.015	-.062	-.086	-.034	.007	.041	.066	.126	.143	.149	.154
.650	.094	.115	.120	.106	.083	.070	.045	.014	-.006	-.042	-.065	-.031	.003	.025	.046	.090	.104	.101	.097
.750	.054	.081	.101	.099	.083	.076	.063	.143	.034	.012	.002	.008	.018	.037	.046	.079	.091	.079	.061
.850	.036	.064	.105	.118	.106	.112	.112	.102	.105	.094	a.114	.085	.082	.091	.089	.103	.109	.086	.047
.925	.002	.037	.098	.118	.112	.131	.140	.147	.157	.158	.196	.139	.125	.123	.112	.105	.104	.079	.025
.975	.085	.113	.146	.159	.159	.160	.186	.198	.223	.229	.282	.202	.171	.157	.135	.135	.095	.065	0
a1.000	.225	.224	.305	.213	.242	.222	.231	.311	.299	.283	.340	.256	.231	.231	.192	.264	.193	.153	.061

aFaired value.

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) — Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.46°.

J	1.970	2.056	2.156	2.248	2.361	2.450	2.419	2.320	2.181	2.119	2.020	1.899
M_r	.715	.731	.751	.770	.789	.809	.800	.781	.755	.742	.724	.703
α_r'	4.58	3.38	2.01	.80	-.61	-1.64	-1.29	-.99	1.67	2.51	3.88	5.63
$\Delta\beta$	.34	.32	.30	.29	.26	.24	.25	.27	.30	.31	.33	.35
α_1	2.19	1.89	1.39	1.00	.55	.15	.20	.53	1.10	1.39	1.79	2.16
c_n	.7904	.6647	.5053	.3638	.2018	.0536	.0733	.1931	.4018	.5030	.6465	.7761
c_m	-.0427	-.0437	-.0528	-.0613	-.0707	-.0752	-.0763	-.0743	-.0663	-.0595	-.0488	-.0441
c_a	-.0303	-.0406	-.0210	-.0100	.0022	-.0031	-.0023	-.0012	-.0057	-.0148	-.0344	-.0507
o/b	Pressure coefficient, P											
Upper surface												
0.000	1.135	1.141	1.150	1.158	1.165	1.175	1.170	1.162	1.151	1.146	1.138	1.130
.025	-.567	-1.221	a-.539	a-.181	.194	.217	.207	.183	a-.179	a-.431	a-1.111	a-1.550
.050	-1.364	-1.161	-.823	a-.322	a-.070	.067	a.065	a-.025	-.335	-.540	-1.016	-1.460
.100	-1.917	-.974	-.698	-.466	a-.249	-.074	-.066	-.187	a-.447	-.622	-.831	-1.259
.200	-1.296	-.823	-.671	-.487	-.324	a-.194	a-.204	-.312	-.513	a-.645	-.784	-.918
.300	-.767	-.726	-.619	-.507	-.389	-.279	a-.313	-.401	-.556	a-.638	-.748	-.743
.400	-.696	-.663	-.628	-.565	-.471	-.379	a-.409	-.477	-.600	a-.643	-.686	-.681
.500	-.636	-.609	-.615	-.594	-.530	-.467	a-.496	a-.542	-.629	a-.630	-.630	-.632
.600	-.564	-.536	-.551	-.572	-.592	-.566	a-.574	a-.611	-.590	-.570	-.560	-.570
.700	-.450	-.427	a-.440	a-.448	-.456	a-.515	a-.520	-.489	a-.488	-.460	-.445	-.457
.800	-.300	-.279	a-.267	a-.265	-.321	-.326	-.342	-.346	a-.331	a-.298	-.297	-.310
.900	-.039	-.023	-.032	-.038	-.045	-.049	-.058	-.063	-.054	-.043	-.035	-.051
.950	.065	.079	.078	.082	.084	.082	.073	.067	.064	.066	.067	.062
Lower surface												
.0375	.493	.418	.218	.014	-.277	-.740	-.728	-.322	.086	.243	.428	.563
.075	.363	.305	a.149	-.021	-.215	-.593	-.509	-.250	.023	.147	.294	.410
.150	.248	.204	.086	-.020	-.148	a-.286	-.279	a-.166	.014	.095	.202	.290
.250	.174	.141	.048	-.030	-.126	a-.231	-.230	a-.140	-.004	.054	.138	.210
.350	.120	.098	.019	-.043	-.126	a-.213	a-.203	a-.131	-.032	.021	.089	a.151
.450	a.066	.063	.001	-.047	-.136	a-.207	a-.192	a-.138	-.033	.002	a.040	a.054
.550	.025	.013	-.042	-.089	-.148	-.207	a-.202	-.158	-.080	-.038	.006	.052
.650	.001	-.008	-.058	-.098	-.141	-.189	-.191	-.156	-.098	-.064	-.022	.018
.750	0	-.003	-.037	-.082	-.089	-.120	-.128	-.108	-.073	-.048	-.016	.013
.850	.018	a.012	a.004	.004	-.006	-.020	-.029	-.023	-.010	-.006	a0	.045
.925	.045	.053	.045	.046	.050	.049	.039	.036	.030	.037	.041	.058
.975	.091	.095	.116	.106	.120	.155	.143	.112	.126	.125	.094	.105
a1.000	.152	.162	.181	.176	.281	.240	.210	.191	.211	.186	.162	.183

a Faired value.

NACA

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) — Continued

(1) $M = 0.56$; $\beta_{0.75R} = 44.46^\circ$.

J	2.008	2.039	2.059	2.090	2.120	2.143	2.180	2.212	2.240	2.259	2.287	2.312	2.352	2.390	2.424	2.463	2.495
M_x	.835	.828	.821	.817	.811	.804	.800	.797	.792	.785	.778	.774	.768	.765	.763	.755	.748
α_x	4.04	3.62	3.32	2.89	2.48	2.18	1.70	1.27	.92	.66	.33	0	-.48	-.95	-1.35	-1.80	-2.18
$\Delta\beta$	.40	.39	.38	.37	.36	.35	.34	.32	.31	.30	.29	.28	.27	.25	.24	.23	.21
α_1	1.57	1.58	1.50	1.42	1.34	1.23	1.13	.99	.90	.86	.79	.69	.57	.42	.33	.20	.05
c_n	.5685	.5730	.5465	.5149	.4858	.4470	.4125	.3618	.3275	.3123	.2888	.2542	.2106	.1525	.1208	.0746	.0187
c_m	-.0724	-.0755	-.0716	-.0680	-.0642	-.0615	-.0602	-.0505	-.0525	-.0588	-.0616	-.0627	-.0645	-.0663	-.0695	-.0727	-.0784
c_o	-.0086	-.0091	-.0113	-.0107	-.0130	-.0189	-.0118	-.0149	-.0112	-.0103	-.0111	-.0109	-.0086	-.0060	-.0056	-.0057	-.0009
x/b								Pressure coefficient, P									
Upper surface																	
0.000	1.186	1.183	1.180	1.178	1.175	1.172	1.170	1.169	1.166	1.164	1.161	1.159	1.156	1.155	1.154	1.151	1.148
.025[a]	-.485	-.485	-.385	-.393	-.275	-.207	-.212	-.175	-.124	-.142	-.175	-.147	-.068	.045[a]	.082[a]	.132[a]	-.370
.050	-.527	-.527	-.467	-.426	-.309	-.350	-.311	-.268	-.221	-.183	-.242	-.208[a]	-.137[a]	-.040[a]	-.002[a]	.050	.192
.100	-.515	-.523	-.522	-.521	-.511	-.497	-.462	-.423	-.383	-.352	-.314	-.273	-.219	-.146	-.105	-.056	-.014
.200	-.603	-.622	-.612	-.610	-.600	-.597	-.540	-.496	-.435	-.407	-.381	-.350	-.308	-.261	-.224	-.181	-.150
.300	-.678	-.724	-.695	-.679	-.666	-.644	-.595	-.544	-.502	-.480	-.457	-.424	-.385	-.336	-.308	-.274	-.244
.400	-.713	-.782	-.771	-.742	-.704	-.676	-.636	-.610	-.587	-.564	-.535	-.495	-.453	-.406	-.379	-.348	-.318
.500	-.771	-.809	-.783	-.764	-.738	-.710	-.674	-.640	-.606	-.594	-.582	-.554	-.513	-.473	-.444	-.416	-.389
.600	-.855	-.879	-.850	-.840	-.817	-.780	-.739	-.714	-.684	-.657	-.616	-.572	-.533	-.501	-.479	-.461	-.439
.700	-.465	-.547	-.551	-.526	-.491	-.459	-.444	-.445	-.444	-.455	-.466	-.463	-.457	-.447	-.437	-.430	-.419
.800	-.309[a]	-.281[a]	-.242[a]	-.235[a]	-.210[a]	-.207[a]	-.224[a]	-.063	-.112	-.206	-.252	-.279	-.299	-.297	-.304	-.328	-.345
.900	-.188	-.128	-.065	-.044	-.031	-.028	-.023	-.027	-.032	-.043	-.054	-.060	-.073	-.079	-.086	-.103	-.113
.950	-.112	-.074	-.010	.020	.044	.056	.070	.074	.076	.074	.069	.068	.064	.062	.052	.040	.029
Lower surface																	
.0375	.326	.293	.263	.225	.179	.134	.098	.047	-.007	-.063	-.128	-.194	-.284	-.413	-.509	-.700	-.906
.075	.252	.212	.180	.151	.132	.075	.042	0	-.038	-.079	-.127	-.167	-.221	-.293	-.335	-.385	-.413
.150	.168	.141	.121	.099	.079	.046	.026	-.001	-.025	-.052	-.083	-.107	-.142	-.187	-.217	-.266	-.302
.250	.108	.086	.071	.052	.039	.011	-.002	-.022	-.042	-.063	-.087	-.104	-.128	-.163	-.188	-.216	-.241
.350	.062	.043	.031	.015	.004	-.019	-.029	-.045	-.060	-.075	-.095	-.107	-.126	-.149	-.187	-.187	-.205
.450	.033	.014	.003	-.011	-.031	-.043	-.043	-.050	-.061	-.073	-.088	-.097	-.110	-.128	-.139	-.157	-.170
.550	-.045	-.053	-.056	-.064	-.057	-.075	-.085	-.099	-.107	-.116	-.127	-.132	-.139	-.153	-.157	-.171	-.178
.650	-.101	-.109	-.107	-.113	-.112	-.117	-.116	-.123	-.126	-.129	-.137	-.136	-.139	-.146	-.148	-.157	-.161
.750	-.100	-.102	-.095	-.095	-.090	-.091	-.085	-.087	-.087	-.088	-.093	-.091	-.091	-.091	-.089	-.095	-.097
.850	-.079	-.069	-.051	-.046	-.038	-.032	-.024	-.023	-.021	-.020	-.022	-.019	-.013	-.008	-.005	-.008	-.006
.925	-.086	-.055	-.026	-.014	0	.011	.020	.024	.029	.032	.035	.040	.054	.063	.067	.066	.069
.975	-.011	-.021	-.067	.082	.116	.130	.133	.212	.125	.113	.125	.140	.120	.130	.177	.175	.205
1.000[a]	.350	.230	.300	.300	.350	.400	.275	.475	.300	.300	.300	.325	.325	.325	.325	.350	.500

[a]Faired value.

NACA

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) — Continued

(j) M = 0.60; $\beta_{0.75R}$ = 44.46°.

J	2.022	2.048	2.061	2.090	2.103	2.123	2.144	2.207	2.228	2.251	2.286	2.316	2.348	2.378	2.409	2.455
M_r	.894	.888	.882	.876	.870	.865	.861	.862	.850	.846	.839	.832	.826	.821	.816	.813
α_r'	3.85	3.48	3.30	2.89	2.73	2.45	2.18	1.32	1.07	.77	.33	-.03	-.42	-.79	-1.16	-1.70
$\Delta\beta$	.42	.41	.41	.39	.39	.38	.37	.34	.33	.33	.31	.30	.28	.27	.26	.24
α_1	1.20	1.29	1.27	1.18	1.16	1.07	1.07	.85	.79	.71	.63	.51	.40	.32	.18	.07
c_n	.4345	.4665	.4610	.4261	.4197	.3873	.3882	.3104	.2888	.2590	.2316	.1886	.1470	.1163	.0662	.0245
c_m	-.0657	-.0729	-.0745	-.0751	-.0729	-.0648	-.0714	-.0702	-.0700	-.0714	-.0723	-.0722	-.0718	-.0754	-.0777	-.0807
c_c	.0171	.0175	.0173	.0210	.0201	.0182	.0196	.0162	.0155	.0117	.0055	.0029	.0072	.0061	.0042	.0036
c/b							Pressure coefficient, P									
Upper surface																
0.000	1.216	1.212	1.209	1.206	1.203	1.201	1.199	1.199	1.194	1.191	1.188	1.185	1.182	1.180	1.178	1.176
.025	a-.105	a-.225	a-.160	a.050	a-.062	a.095	a.125	.171	.158	.147	.117	.131	a.340	a.375	a.440	a.465
.050	-.269	-.283	-.266	-.238	-.217	-.201	-.178	-.081	-.047	-.022	.011	.052	.082	.117	.164	.203
.100	-.330	-.357	-.365	-.366	-.366	-.365	-.358	-.287	-.258	-.232	-.206	-.168	-.141	-.106	-.064	-.025
a.200	-.463	-.488	-.482	-.464	-.466	-.472	-.477	-.394	-.380	-.359	-.315	-.281	-.245	-.219	-.184	-.150
.300	-.546	-.586	-.576	-.559	-.556	-.555	-.548	-.487	-.464	-.443	-.408	-.371	-.354	-.329	-.298	-.269
.400	-.564	-.624	-.648	-.651	-.637	-.624	-.609	-.554	-.527	-.512	-.498	-.479	-.460	-.435	-.400	-.372
.500	-.622	-.671	-.682	-.682	-.681	-.674	-.655	-.599	-.588	-.578	-.553	-.520	-.503	-.487	-.469	-.459
.600	-.707	-.763	-.777	-.776	-.763	-.756	-.743	-.706	-.701	-.692	-.676	-.652	-.641	-.628	-.605	-.585
.700	-.676	-.768	-.808	-.831	-.843	-.618	-.835	-.818	-.809	-.799	-.786	-.766	-.747	-.682	-.605	-.542
.800	-.315	-.333	-.323	-.314	-.305	-.292	-.281	-.268	-.272	-.270	-.257	-.254	-.267	-.289	-.314	-.335
.900	-.285	-.303	-.293	-.279	-.265	-.246	-.218	-.159	-.128	-.094	-.054	-.032	-.036	-.042	-.051	-.065
.950	-.198	-.262	-.263	-.256	-.248	-.226	-.196	-.127	-.076	-.040	.008	.053	.069	.077	.078	.070
Lower surface																
.0375	.275	.249	.213	.178	.149	.131	.100	-.023	-.089	-.148	-.206	-.293	-.379	-.486	-.656	-.808
.075	.195	.169	.144	.116	.088	.073	.045	-.052	-.102	-.147	-.186	-.242	-.296	-.355	-.474	-.652
.150	.164	.139	.119	.097	.073	.060	.040	-.024	-.059	-.088	-.113	-.146	-.176	-.208	-.252	-.275
.250	.098	.075	.058	.039	.020	.010	-.007	-.059	-.085	-.108	-.123	-.148	-.175	-.196	-.229	-.255
.350	.041	.021	.009	-.007	-.025	-.031	-.044	-.086	-.107	-.125	-.136	-.154	-.173	-.188	-.210	-.229
.450	.011	-.010	-.018	-.033	-.047	-.054	-.064	-.100	-.115	-.130	-.137	-.148	-.162	-.170	-.186	-.199
.550	-.079	-.100	-.106	-.120	-.133	-.136	-.144	-.173	-.183	-.194	-.194	-.196	-.203	-.204	-.211	-.218
.650	-.161	-.180	-.183	-.193	-.202	-.200	-.202	-.221	-.223	-.224	-.216	-.205	-.207	-.200	-.199	-.199
a.750	a-.207	a-.216	a-.216	a-.224	a-.228	a-.219	a-.220	a-.215	a-.201	a-.194	a-.184	-.163	-.166	-.156	-.150	-.140
a.850	-.215	-.222	-.220	-.223	-.223	-.208	-.194	-.171	-.140	-.127	-.107	-.080	-.079	-.070	-.061	-.043
.925	-.181	-.204	-.203	-.201	-.192	-.171	-.146	-.109	-.076	-.054	-.025	.006	.018	.034	.049	.060
a.975	-.101	-.176	-.179	-.175	-.149	-.120	-.093	-.053	-.011	.006	.044	.081	.122	.140	.156	.150
a1.000	.025	-.120	-.145	-.135	-.100	-.050	-.040	.010	.065	.050	.115	.175	.215	.240	.275	.245

a Paired value.

NACA

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.97)(08.00) PROPELLER BLADE SECTION (x = 0.70) — Concluded

(k) M = 0.65; $\beta_{0.75R}$ = 44.46°.

J	2.036	2.053	2.074	2.095	2.112	2.134	2.151	2.175	2.203	2.226	2.253	2.280	2.309	2.337	2.367
M_x	.998	.992	.987	.982	.973	.968	.961	.956	.946	.940	.935	.927	.921	.912	.906
$\alpha_x{}'$	3.65	3.41	3.12	2.83	2.60	2.30	2.07	1.76	1.43	1.09	.75	.40	.04	-.30	-.67
$\Delta\beta$	.49	.48	.47	.46	.45	.44	.43	.42	.41	.40	.38	.37	.35	.34	.32
α_1	.94	1.02	.94	.90	.81	.75	.68	.63	.50	.44	.34	.26	.16	.05	-.08
c_n	.3412	.3693	.3422	.3241	.2956	.2717	.2464	.2290	.1798	.1598	.1235	.0944	.0576	.0168	-.0303
c_m	-.0999	-.1103	-.1048	-.1004	-.0886	-.0824	-.0771	-.0727	-.0650	-.0604	-.0551	-.0486	-.0468	-.0400	-.0397
c_o	.0491	.0564	.0524	.0504	.0487	.0486	.0460	.0457	.0428	.0423	.0416	.0408	.0379	.0340	.0260

a/b							Pressure coefficient, P								
Upper surface															
0.000	1.273	1.270	1.267	1.264	1.259	1.256	1.252	1.249	1.244	1.241	1.238	1.233	1.230	1.225	1.222
.025	.452	.443	.435	.433	.424	.420	.413	.406	.396	.389	.382	.372	.361	.351	.345
.050	.033	.003	.005	.004	.017	.037	.052	.061	.090	.107	.120	.132	.152	.173	.200
.100	-.088	-.130	-.139	-.139	-.145	-.151	-.145	-.138	-.114	-.100	-.085	-.080	-.064	-.044	-.019
a.200	-.264	-.268	-.271	-.270	-.270	-.272	-.275	-.265	-.243	-.230	-.221	-.220	-.202	-.190	-.147
.300	-.354	-.373	-.361	-.351	-.348	-.341	-.336	-.331	-.315	-.305	-.297	-.295	-.283	-.264	-.231
.400	-.396	-.430	-.437	a-.420	a-.405	a-.400	a-.390	a-.387	-.389	-.386	-.382	-.372	-.356	-.348	-.338
.500	-.453	-.484	-.484	-.480	-.476	-.466	-.458	-.455	-.437	-.429	-.425	-.429	-.427	-.423	-.404
.600	-.538	-.573	-.579	-.578	-.574	-.567	-.557	-.554	-.548	-.547	-.548	-.553	-.555	-.544	-.527
.700	-.608	-.653	-.663	-.663	-.663	-.655	-.651	-.651	-.646	-.648	-.652	-.656	-.655	-.653	-.647
.800	-.673	-.740	-.755	-.761	-.763	-.762	-.761	-.764	-.757	-.760	-.764	-.767	-.765	-.733	-.646
.900	-.714	-.823	-.794	-.683	-.547	-.466	-.424	-.406	-.359	-.347	-.326	-.309	-.279	-.242	-.197
.950	-.401	-.491	-.492	-.470	-.439	-.408	-.386	-.376	-.343	-.331	-.313	-.298	-.271	-.235	-.188
Lower surface															
.0375	.209	.187	.148	.120	.084	.041	.004	-.029	-.094	-.149	-.205	-.265	-.336	-.411	-.484
.075	.134	.114	.081	.064	.036	-.002	-.032	-.061	-.117	-.161	-.210	-.257	-.317	-.390	-.467
.150	.118	.098	.072	.056	.036	.013	-.007	-.025	-.056	-.085	-.129	-.185	-.257	-.331	-.409
.250	.076	.060	.037	.024	.008	-.009	-.023	-.037	-.061	-.084	-.106	-.128	-.158	-.202	-.253
.350	.042	.023	.003	-.007	-.021	-.035	-.047	-.062	-.083	-.103	-.129	-.151	-.172	-.194	-.253
.450	.028	.009	-.009	-.019	-.030	-.043	-.053	-.067	-.088	-.107	-.131	-.152	-.172	-.194	-.218
.550	-.057	-.078	-.094	-.103	-.113	-.125	-.134	-.147	-.164	-.183	-.204	-.225	-.244	-.262	-.276
.650	-.167	-.188	-.204	-.210	-.222	-.232	-.244	-.257	-.273	-.289	-.308	-.327	-.345	-.366	-.381
.750	-.227	-.254	-.268	-.277	-.286	-.295	-.306	-.319	-.337	-.354	-.374	-.393	-.413	-.433	-.448
.850	-.237	-.265	-.282	-.289	-.297	-.307	-.315	-.329	-.347	-.364	-.386	-.407	-.424	-.464	-.445
.925	-.266	-.299	-.315	-.321	-.329	-.340	-.349	-.361	-.376	-.395	-.412	-.431	-.445	-.464	-.342
.975	-.313	-.351	-.367	-.373	-.381	-.388	-.396	-.408	-.418	-.433	-.447	-.447	-.402	-.272	-.178
a1.000	-.305	-.324	-.325	-.320	-.300	-.345	-.269	-.312	-.310	-.236	-.220	-.130	-.248	0	.150

a Faired value.

NACA

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.94°.

J	0.740	0.854	1.012	1.177	1.331	1.492	1.402	1.243	1.088	0.942	0.804
M_x	.406	.418	.435	.453	.466	.488	.480	.462	.447	.430	.421
α_x'	12.50	10.02	6.69	3.40	.47	-2.41	-.81	2.13	5.16	8.15	11.10
$\Delta\beta$	.19	.19	.18	.17	.16	.15	.16	.17	.18	.19	.19
α_1	3.37	3.03	2.37	1.82	1.10	.11	.38	1.06	1.57	2.11	2.76
c_n	1.0263	.9502	.7593	.5954	.3664	.0378	.1271	.3485	.5061	.6685	.8528
c_m	-.0604	-.0464	-.0235	-.0286	-.0361	-.0587	-.0591	-.0473	-.0515	-.0440	-.0588
c_o	-.0563	-.0538	-.0527	-.0455	-.0334	.0068	.0083	-.0096	.0027	-.0070	-.0075

	a/b	Pressure coefficient, P										
Upper surface	0.000	1.042	1.045	1.049	1.053	1.056	1.061	1.059	1.055	1.051	1.047	1.045
	[a].025	-2.438	-2.234	-2.065	-1.935	-1.527	.320	.321	-.463	-.128	-.182	-.213
	.050	-2.049	-1.954	-1.840	-1.709	-1.286	[a].125	0	-.430	-.744	-1.056[a]	-1.157
	.100	-1.136	-1.158	-1.311	-.709	-.331	-.027	-.140	-.398	-.693	-1.271[a]	-1.457
	.200	-1.066[a]	-1.054[a]	-.772[a]	-.601[a]	-.353[a]	.147[a]	-.232[a]	-.395[a]	-.589	-.844[a]	-1.131[a]
	.300	-1.035	-.973	-.652	-.520	-.390	-.231	-.289	-.419	-.554	-.639	-.922
	.400	-.921	-.832	-.567	-.470	-.374	-.252	-.297	-.395	-.500	-.555	-.790
	.500	-.782	-.680	-.503	-.443	-.382	-.284	-.317	-.395	-.472	-.502	-.660
	.600	-.617	-.540	-.441	-.414	-.385	-.310	-.338	-.392	-.444	-.449	-.527
	.700	-.477	-.417	-.371	-.376	-.374	-.325	-.338	-.376	-.401	-.381	-.419
	.800	-.350	-.308	-.257	-.273	-.298	-.274	-.282	-.295	-.297	-.267	-.310
	.900	-.230	-.213	-.101	-.093	-.128	-.130	-.127	-.120	-.107	-.107	-.211
	.950	-.148	-.156	-.014	.035	.023	.014	.010	.013	.015	-.013	-.140
Lower surface	.0375	.818	.783	.659	.412	-.004	-.532	-.292	.102	.437	.648	.765
	.075	.644	.607	.483	.282	-.012	-.338	-.194	.062	.302	.476	.592
	.150	.487	.448	.343	.197	-.012	-.226	-.127	.038	.202	.332	.431
	.250	.365	.335	.246	.135	-.014	-.138	-.075	.031	.151	.252	.333
	.350	.328	.301	.232	.141	.020	-.092	-.042	.051	.146	.223	.289
	.450	.220	.198	.150	.074	-.028	-.125	-.078	-.003	.075	.138	.187
	.550	.112	.095	.062	-.004	-.088	-.151	-.119	-.063	-.002	.052	.088
	[a].650	.079	.042	.041	-.002	-.065	-.127	-.116	-.082	-.031	.010	.035
	.750	.068	.021	.030	.010	-.041	-.072	-.070	-.057	-.025	-.004	.002
	[a].850	.019	-.003	.005	.020	.007	-.015	-.006	-.008	-.001	0	-.027
	.925	-.033	-.026[a]	.027	.041	.042	.046	.046	.038	.032	.017	-.051
	.975	-.066	-.092	.027	.063	.086	.105	.097	.078	.052	.017	-.094
	[a]1.000	.054	-.032	.176	.255	.302	.235	.216	.203	.257	.156	0

[a]Faired value.

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) - Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.94°.

J	0.688	0.759	0.858	0.945	0.994	1.094	1.110	1.209	1.287	1.387	1.377	1.466	1.469	1.426	1.334	1.202	1.154	1.068	0.976	0.896	0.822
Mx	.499	.494	.512	.510	.519	.525	.542	.555	.556	.569	.566	.583	.582	.568	.556	.560	.545	.528	.510	.508	.516
αx'	13.66	12.08	9.93	8.08	8.53	6.45	4.72	2.91	1.30	-.54	-.36	-1.95	-2.00	-1.28	.49	2.91	3.83	5.55	7.44	9.12	10.70
Δβ	.26	.27	.27	.26	.27	.25	.25	.24	.23	.21	.21	.21	.20	.21	.22	.24	.24	.25	.26	.27	.27
c1	3.34	3.02	2.79	2.48	2.53	2.25	1.92	1.55	1.18	.58	.63	.20	.17	.33	.82	1.27	1.63	2.06	2.47	2.60	2.93
cn	1.0081	.9919	.8766	.7846	.8017	.7806	.6944	.5087	.3910	.1934	.2064	.0514	.0572	.1107	.2711	.4137	.5384	.6671	.7849	.8248	.9119
Po	-.1192	-.0053	-.0332	-.0455	-.0958	-.0358	-.0307	-.0394	-.0420	-.0658	-.0827	-.0651	-.0674	-.0477	-.0604	-.0423	-.0448	-.0433	-.0328	-.0289	-.0403
	.0019	.0172	.0287	.0395	.0313	.0300	-.0240	.0210	.0212	.0104	.0140	.0131	-.0144	.0124	.0087	-.0068	-.0191	-.0285	-.0294	-.0286	-.0327

o/b	Pressure coefficient, P																				
Upper surface																					
0.000	1.064	1.062	1.067	1.066	1.069	1.070	1.075	1.079	1.079	1.083	1.082	1.087	1.087	1.083	1.079	1.080	1.075	1.071	1.066	1.066	1.068
.025	-.617	-.852	-1.125	-1.215	-1.259	-1.313	-1.291	-1.228	-1.178	-.794	-.714	.760	.735	.616	-.004	-.484	-.760	-1.082	-1.165	-1.191	-1.188
.050	-.847	-1.019	-1.259	-1.395	-1.459	-1.377	-1.309	-.883	-.594	-.574	.449	.410	-.136	-.494	-.730	-1.008	-1.445	-1.448	-1.414		
.100	-1.122	-1.092	-1.531	-1.620	-1.659	-1.436	-1.377	-.791	-.387	-.221	-.297	-.058	-.051	.170	-.306	-.508	-.730	-.879	-1.572	-1.639	-1.644
.200	-1.135	-1.076	-1.270	-1.003	-1.056	-1.237	-.810	-.779	-.411	-.358	-.357	-.083	-.273	-.265	.391	-.489	-.739	-.956	-1.118	-1.273	
.300	-1.068	-1.015	-.936	-.703	-.704	-.668	-.600	-.430	-.427	-.352	-.357	-.262	-.259	-.307	-.394	-.470	-.596	-.646	-.799	-.924	
.400	-.997	-.913	-.706	-.589	-.580	-.662	-.579	-.513	-.467	-.346	-.394	-.277	-.273	-.315	-.400	-.433	-.567	-.589	-.678	-.738	
.500	-.906	-.787	-.547	-.503	-.500	-.596	-.538	-.455	-.411	-.368	-.376	-.315	-.313	-.340	-.392	-.489	-.524	-.523	-.514	-.587	
.600	-.786	-.6	-.432	-.424	-.419	-.467	-.502	-.461	-.407	-.353	-.368	-.340	-.338	-.346	-.398	-.476	-.456	-.406			
.700	-.600	-.517	-.359	-.337	-.336	-.393	-.398	-.434	-.381	-.370	-.373	-.342	-.362	-.366	-.413	-.448	-.475				
.800	-.489	-.398	-.253	-.237	-.285	-.270	-.283	-.391	-.296	-.304	-.308	-.292	-.291	-.299	-.378	-.372	-.395	-.402	-.370	-.337	-.365
.900	-.401	-.287	-.162	-.095	-.097	-.092	-.081	-.285	-.127	-.131	-.132	-.130	-.134	-.303	-.288	-.296	-.260	-.260	-.236	-.295	
.950	-.317	-.206	-.095	-.010	-.031	.052	.081	.025	-.118	.007	.008	.010	-.028	-.009	.005	.091	.074	.051	-.036	-.042	-.085	-.175

o/b																					
Lower surface																					
.0375	.847	.787	.788	.724	.731	.637	.507	.317	.079	-.191	-.191	-.510	-.513	-.368	-.044	.244	.414	.593	.710	.759	.792
.075	.677	.617	.607	.543	.551	.467	.354	.213	.043	-.135	-.139	-.393	-.386	-.285	-.038	.160	.286	.428	.528	.573	.614
.150	.580	.472	.455	.403	.407	.338	.255	.151	.035	-.084	-.089	-.307	-.208	-.158	-.084	.109	.201	.303	.385	.484	.461
.250	.390	.350	.325	.294	.298	.241	.178	.104	.044	-.045	-.049	-.132	-.132	-.095	.009	.086	.150	.229	.295	.385	.356
.350	.330	.301	.268	.255	.259	.213	.202	.102	.035	-.097	-.033	-.090	-.090	-.062	.011	.065	.150	.229	.281	.309	
.450	.298	.205	.194	.170	.176	.138	.092	.043	-.013	-.077	-.071	-.077	-.090	-.124	-.105	-.042	.084	.069	.203	.235	.180
.550	.108	.091	.086	.073	.075	.043	.009	-.032	-.077	-.120	-.127	-.163	-.160	-.105	-.099	-.047	.011	.121	.163	.077	
.650	.045	.041	.039	.038	.043	.020	-.008	-.040	-.073	-.106	-.111	-.134	-.133	-.127	-.099	-.049	.011	.032	.065	.077	.097
.750	-.002	.004	.018	.022	.094	.015	-.008	-.019	-.042	-.063	-.071	-.085	-.088	-.079	-.089	-.054	-.022	.012	.035	.038	.046
.850	-.055	-.037	-.027	-.002	0	.011	.005	-.004	-.007	-.015	-.021	-.025	-.023	-.024	-.026	0	.019	.021	.022	.019	.019
.925	-.097	-.063	-.041	-.002	.002	.024	.035	.043	.046	.047	.037	.043	.044	.041	-.010	.039	.010	.021	.018	-.004	-.018
.975	-.071	-.059	-.011	.031	.029	.072	.102	.102	.101	.136	.117	.115	.110	.125	.113	.039	.038	.036	.018	-.013	-.046
1.000	.020	.032	.093	.230	.105	.289	.307	.224	.273	.226	.301	.269	.180	.256	.222	.492	.332	.257	.208	.105	.138

aFaired value.

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) - Continued

(c) N = 1600 rpm; $\beta_{0.75R}$ = 29.94°.

J	0.760	0.839	0.899	0.968	1.036	1.106	1.193	1.255	1.339	1.418	1.495	1.455	1.379	1.302	1.225	1.144	1.071	1.002	0.932	0.868	0.802
M_x	.596	.602	.605	.624	.628	.639	.640	.660	.670	.672	.685	.676	.668	.653	.650	.639	.629	.618	.611	.599	.582
a_x'	12.06	10.34	9.06	7.61	6.21	4.79	3.09	1.90	.33	-1.10	-2.46	-1.76	-.40	1.02	2.47	4.03	5.30	6.90	8.36	9.72	11.14
$\Delta\beta$	.36	.36	.35	.35	.34	.34	.33	.33	.32	.31	.30	.31	.31	.54	.32	.33	.34	.34	.35	.35	.36
a_T	3.15	2.95	2.89	2.71	2.36	1.96	1.62	1.22	.75	.47	.10	.18	.97	.97	1.30	1.71	2.10	2.58	2.82	3.08	3.31
q_n	.9675	.9170	.9120	.8631	.7601	.6363	.5280	.4004	.2496	.1556	.0329	.0586	.1805	.3209	.4274	.5570	.6808	.8281	.8957	.9709	1.0281
q_m	-.0699	-.0385	-.0199	-.0253	-.0333	-.0372	-.0461	-.0448	-.0549	-.0596	-.0578	-.0612	-.0641	-.0545	-.0512	-.0497	-.0395	-.0318	-.0201	-.0208	-.0545
q_o	-.0411	-.0525	-.0551	-.0603	-.0493	-.0352	-.0233	-.0168	-.0052	-.0020	.0019	.0089	.0036	-.0032	-.0071	-.0189	-.0426	-.0759	-.0623	-.0650	-.0556

x/b	Pressure coefficient, P																				
Upper surface																					
0.000	1.091	1.093	1.094	1.101	1.102	1.106	1.106	1.114	1.217	1.118	1.123	1.120	1.116	1.111	1.110	1.106	1.102	1.098	1.096	1.092	1.087
.025	-.991	-.963	-1.993	-2.286	-2.270	-1.521	-.978	-.754	-.270	-.08	.125	.175	.100	-.176	-.415	-.700	-1.695	-2.298	-2.322	-2.386	-2.460
.050	-2.035	-1.987	-1.987	-2.129	-2.115	-1.343	-.964	-.582	-.310	-.133	.055	.074	-.017	-.254	-.509	-.764	-1.502	-2.148	-2.175	-2.243	-2.304
.100	-1.392	-1.561	-1.814	-1.501	-.944	-.824	-.687	-.506	-.319	-.189	-.043	-.039	-.180	-.367	-.542	-.759	-.824	-1.283	-1.699	-1.674	-1.459
.200	-1.132	-1.262	-1.304	-.924	-.795	-.688	-.616	-.493	-.375	-.285	-.200	-.219	-.320	-.485	-.665	-.723	-.855	-1.030	-1.222	-1.166	-1.166
.300	-.991	-1.014	-.914	-.733	-.715	-.642	-.572	-.489	-.394	-.336	-.255	-.280	-.363	-.461	-.522	-.618	-.679	-.725	-.752	-1.002	-1.007
.400	-.860	-.766	-.699	-.625	-.619	-.570	-.523	-.464	-.390	-.349	-.286	-.304	-.369	-.444	-.484	-.556	-.598	-.636	-.636	-.737	-.837
.500	-.724	-.577	-.557	-.547	-.558	-.529	-.500	-.472	-.402	-.376	-.328	-.341	-.394	-.447	-.471	-.520	-.545	-.569	-.548	-.687	-.687
.600	-.597	-.444	-.453	-.475	-.500	-.485	-.474	-.446	-.411	-.400	-.365	-.373	-.411	-.447	-.451	-.484	-.493	-.504	-.462	-.419	-.557
.700	-.490	-.348	-.356	-.378	-.412	-.408	-.412	-.400	-.384	-.384	-.365	-.368	-.392	-.410	-.400	-.413	-.408	-.411	-.361	-.321	-.451
.800	-.389	-.261	-.252	-.234	-.265	-.267	-.283	-.289	-.291	-.299	-.295	-.295	-.301	-.305	-.283	-.279	-.269	-.263	-.223	-.229	-.355
.900	-.316	-.195	-.166	-.065	-.068	-.062	-.074	-.085	-.097	-.113	-.120	-.114	-.110	-.100	-.074	-.063	-.065	-.064	-.087	-.154	-.277
.950	-.251	-.143	-.105	.026	.053	.061	.074	.063	-.013	.048	.034	.039	.042	.051	.060	.067	.053	.059	-.007	-.100	-.218
Lower surface																					
.0375	.825	.792	.723	.707	.614	.490	.323	.156	-.102	-.350	-.697	-.582	-.251	.034	.244	.431	.560	.669	.737	.785	.815
.075	.685	.678	.562	.531	.466	.362	.236	.104	-.076	-.254	-.420	-.341	-.169	.015	.174	.298	.404	.493	.551	.683	.852
.150	.501	.473	.407	.399	.332	.255	.163	.063	-.053	-.158	-.280	-.228	-.116	.005	.117	.220	.296	.379	.425	.463	.490
.250	.381	.358	.300	.306	.249	.188	.117	.043	-.030	-.100	-.183	-.147	-.068	-.003	.082	.162	.222	.285	.325	.354	.376
.330	.271	.257	.201	.209	.166	.115	.054	-.004	-.087	-.152	-.210	-.189	-.128	-.049	.027	.090	.141	.196	.228	.250	.263
.450	.204	.190	.141	.160	.122	.058	0	-.059	-.111	-.160	-.216	-.202	-.152	-.090	-.030	.020	.099	.143	.172	.189	.197
.550	.102	.104	.064	.095	.063	.032	.009	-.037	-.077	-.117	-.155	-.191	-.176	-.145	-.103	-.054	-.012	.045	.084	.103	.101
.650	.038	.052	.014	.054	.032	-.007	-.042	-.071	-.104	-.135	-.159	-.146	-.123	-.095	-.054	-.021	.014	.045	.058	.053	.037
.750	.009	.004	-.008	.044	.029	.014	-.008	-.027	-.047	-.070	-.085	-.077	-.097	-.046	-.014	.006	.014	.036	.044	.031	.012
.850	-.051	-.019	-.033	.036	.032	.014	.001	-.009	-.012	-.024	-.027	-.022	-.023	-.017	.002	.009	.025	.035	.031	-.010	-.036
.925	-.097	-.041	-.049	.059	.055	.047	.041	-.037	-.044	-.041	-.046	-.046	-.044	-.041	.047	.043	.045	.064	.064	.007	-.001
.975	-.067	0	-.005	.119	.103	.115	.122	.101	.116	.110	.149	.152	.147	.159	.142	.060	.095	.128	.100	.074	.064
1.000	.043	.085	.095	.229	.269	.257	.356	.283	.211	.190	.270	.320	.261	.293	.264	.307	.337	.280	.188	.158	.150

[a]Faired value.

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) - Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.94°.

J	1.055	1.121	1.218	1.315	1.406	1.425	1.369	1.279	1.192	1.098
M_x	.798	.804	.820	.832	.850	.863	.842	.826	.817	.803
α_x'	5.82	4.49	2.61	.77	-.88	-1.23	-.22	1.45	3.10	4.95
$\Delta\beta$	.55	.53	.50	.47	.45	.44	.46	.48	.51	.54
α_1	2.47	2.19	1.59	.97	.26	.08	.43	1.11	1.65	2.15
c_n	.8049	.7149	.5231	.3191	.0862	.0262	.1438	.3694	.5404	.6956
c_m	-.0607	-.0651	-.0655	-.0647	-.0497	-.0472	-.0537	-.0686	-.0635	-.0651
c_o	-.0331	-.0079	.0010	-.0017	-.0074	-.0035	-.0020	.0027	-.0011	-.0050

	c/b						Pressure coefficient, P				
Upper surface	0.000	1.169	1.172	1.179	1.185	1.194	1.200	1.189	1.182	1.178	1.171
	.025	-.370	-.359	-.325	-.291	-.262	-.245	-.258	-.291	-.303	-.327
	.050	-1.083	-1.029	-.582	-.263	-.033	.016	.016	-.013	-.188	-.643
	.100	-1.035	-.881	-.549	-.305	-.092	-.052	-.089	-.313	-.526	-.824
	a.200	-1.046	-.938	-.620	-.437	-.246	-.200	-.266	-.571	-.732	-.921
	.300	-1.102	-.965	-.722	-.580	-.338	-.293	-.391	-.587	-.767	-.949
	.400	a-1.128	-.934	-.699	-.502	-.368	-.335	-.401	-.569	-.726	-.931
	.500	-1.105	-.934	-.713	-.570	-.456	-.413	-.488	-.614	-.746	-.923
	.600	-.536	-.808	-.763	-.643	-.539	-.512	-.571	-.684	-.783	-.787
	.700	-.399	-.421	-.706	-.774	-.677	-.638	-.704	-.794	-.561	-.420
	a.800	-.182	-.195	-.299	-.353	-.301	-.300	-.287	-.284	-.249	-.217
	.900	-.050	-.062	-.042	-.031	-.026	-.026	-.036	-.046	-.045	-.059
	.950	-.011	.020	.019	.033	.040	.043	.039	.026	.024	.020
Lower surface	.0375	.552	.443	.223	-.078	-.624	-.704	-.438	.012	.289	.460
	.075	.427	.361	.167	-.047	-.371	-.554	-.264	.010	.211	.343
	.150	.308	.234	.102	-.054	-.228	a-.311	-.185	-.018	.134	.238
	.250	.236	.171	.064	-.055	-.197	-.215	-.158	-.026	.096	.179
	.350	.164	.107	.011	-.092	-.214	-.232	-.181	-.068	.041	.113
	.450	.105	.051	-.035	-.124	-.235	-.250	-.213	-.104	-.009	.056
	.550	.018	-.029	-.105	-.184	-.293	-.307	-.255	-.168	-.081	-.024
	.650	-.019	-.055	-.125	-.187	-.276	-.293	-.248	-.177	-.103	-.056
	.750	-.028	-.053	-.106	-.149	-.195	-.200	-.184	-.145	-.091	-.056
	.850	-.022	-.034	-.068	-.087	-.056	-.104	-.100	-.089	-.056	-.034
	a.925	-.016	-.022	-.032	-.033	-.035	-.030	-.038	-.038	-.027	-.012
	.975	-.008	.005	-.006	.010	.023	.029	.018	-.002	0	.003
	a1.000	.104	.184	.152	.171	.150	.200	.181	.152	.143	.165

a Faired value.

NACA

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) - Continued

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.94°.

J	1.103	1.179	1.229	1.288	1.349	1.407	1.371	1.317	1.250	1.200	1.133	1.075
M_x	.858	.869	.876	.886	.896	.907	.900	.891	.876	.870	.860	.849
α_r'	4.86	3.36	2.39	1.28	.15	-.90	-.26	.74	1.99	2.95	4.26	5.42
$\Delta\beta$	.61	.59	.58	.57	.55	.54	.55	.56	.58	.59	.61	.62
α_1	2.18	1.80	1.37	.85	.41	.05	.17	.55	1.11	1.48	1.98	2.41
c_n	.7115	.5899	.4511	.2813	.1344	.0161	.0572	.1817	.3626	.4837	.6444	.7794
c_m	-.0979	-.0867	-.0692	-.0614	-.0532	-.0497	-.0524	-.0535	-.0794	-.0778	-.0885	-.0982
c_c	.0033	.0067	.0088	.0185	.0219	.0251	.0210	.0224	.0230	.0188	.0047	-.0030

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.197	1.203	1.206	1.212	1.217	1.223	1.219	1.214	1.206	1.203	1.198	1.193
a.025	-.617	-.486	-.307	.086	.301	.425	.251	.332	.132	-.102	-.584	-.764
.050	-.626	-.487	-.349	-.174	-.028	.080	.093	.034	-.130	-.264	-.554	-.737
.100	-.642	-.494	-.378	-.245	-.139	-.054	-.046	-.119	-.248	-.360	-.545	-.729
a.200	-.738	-.592	-.491	-.376	-.297	-.228	-.230	-.316	-.433	-.517	-.667	-.792
.300	-.821	-.688	-.587	-.471	-.378	-.306	-.329	-.424	-.527	-.634	-.749	-.860
.400	-.829	-.701	-.589	-.501	-.401	-.304	-.337	-.451	-.542	-.637	-.764	-.887
.500	-.871	-.750	-.649	-.542	-.461	-.385	-.410	-.492	-.593	-.684	-.807	-.924
.600	-.935	-.813	-.714	-.631	-.556	-.494	-.511	-.595	-.664	-.754	-.868	-.981
.700	-.646	-.844	-.798	-.728	-.663	-.574	-.604	-.685	-.766	-.828	-.758	-.577
.800	-.424	-.359	-.300	-.311	-.486	-.667	-.667	-.345	-.288	-.331	-.375	-.471
.900	-.374	-.309	-.240	-.209	-.191	-.180	-.181	-.186	-.213	-.272	-.321	-.404
.950	-.337	-.286	-.237	-.185	-.170	-.155	-.160	-.165	-.187	-.248	-.286	-.311
Lower surface												
.0375	.396	.277	.154	-.046	-.302	-.530	-.501	-.153	.088	.218	.357	.429
.075	.313	.272	.122	-.028	-.203	-.438	-.371	-.110	.059	.108	.286	.366
.150	.239	.163	.096	-.011	-.118	-.296	-.179	-.065	.053	.126	.209	.273
.250	.178	.114	.060	-.015	-.095	-.129	-.121	-.047	.040	.098	.176	.226
a.350	.100	.069	.019	-.037	-.105	-.158	-.143	-.068	.013	.050	.100	.165
.450	.047	.006	-.031	-.101	-.168	-.226	-.205	-.132	-.052	-.012	.041	.083
.550	-.068	-.109	-.208	-.211	-.278	-.307	-.289	-.237	-.166	-.133	-.076	-.038
.650	-.111	-.152	-.178	-.256	-.347	-.378	-.371	-.292	-.199	-.170	-.117	-.083
.750	-.108	-.141	-.154	-.214	-.314	-.391	-.384	-.262	-.169	-.153	-.109	-.083
.850	-.062	-.100	-.104	-.132	-.185	-.264	-.299	-.225	-.180	-.178	-.149	-.136
.925	-.157	-.169	-.151	-.164	-.194	-.200	-.195	-.164	-.147	-.168	-.147	-.145
.975	-.214	-.238	-.202	-.200	-.196	-.179	-.186	-.185	-.192	-.244	-.238	-.255
a1.000	-.154	-.153	-.203	-.101	-.090	-.075	-.110	-.101	-.101	-.102	-.051	-.052

a Faired value.

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) — Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.24°.

	J	1.456	1.584	1.713	1.858	1.981	2.129	2.246	2.422	2.620	2.477	2.347	2.165	1.964	1.795	1.500
	M_x	.483	.501	.509	.530	.541	.560	.573	.595	.619	.601	.584	.560	.539	.519	.486
	$\alpha_x{'}$	12.52	10.34	8.21	5.98	4.17	2.15	.61	-1.54	-3.80	-2.20	-.67	1.65	4.43	6.95	11.76
	$\Delta\beta$	.20	.20	.19	.19	.18	.17	.16	.14	.13	.14	.15	.16	.18	.19	.20
	α_1	2.88	2.60	2.33	1.95	1.71	1.28	.95	.47	-.03	.10	.45	.94	1.54	2.02	2.69
	c_n	.9935	.9019	.8104	.6850	.6034	.4543	.3404	.1700	-.0116	.0349	.1606	.3346	.5444	.7047	.9294
	c_m	-.0720	-.0420	-.0275	-.0359	-.0365	-.0426	-.0458	-.0567	-.0624	-.0696	-.0637	-.0568	-.0449	-.0434	-.0509
	c_o	-.0268	-.0337	-.0380	-.0328	-.0298	-.0191	-.0201	-.0092	-.0012	.0005	-.0030	-.0046	-.0220	-.0261	-.0329
	c/b	Pressure coefficient, P														
Upper surface	0.000	1.060	1.064	1.066	1.072	1.075	1.081	1.084	1.091	1.098	1.093	1.088	1.080	1.075	1.069
	.025	-1.151	-1.059	a-1.159	a-1.199	a-1.121	-.759	-.691	a-.214	a.120	a.146	a.120	a-.131	-.852	-.955	-1.215
	.050	a-1.221	-1.228	-1.366	-1.307	-1.232	-.956	-.564	-.219	.079	.074	.053	-.233	a-.778	-1.132	-1.338
	.100	-1.275	-1.446	-1.556	-1.064	-.878	-.624	-.437	-.197	.023	-.006	-.027	-.346	-.681	-1.069	-1.405
	.200	-1.210	-1.243	-1.033	-.771	-.685	-.539	-.411	-.248	-.080	-.127	-.184	-.411	-.619	-.811	-1.198
	.300	-1.083	-.974	-.742	-.632	-.577	-.476	-.393	-.286	-.170	-.229	-.313	-.430	-.572	-.666	-.986
	.400	-.896	-.754	-.596	-.555	-.520	-.444	-.386	-.303	-.214	-.266	-.323	-.413	-.519	-.587	-.801
	.500	-.737	-.586	-.493	-.505	-.488	-.437	-.393	-.331	-.266	-.312	-.350	-.420	-.497	-.534	-.651
	.600	-.603	-.467	-.411	-.446	-.436	-.410	-.384	-.340	-.304	-.350	-.363	-.418	-.471	-.479	-.531
	.700	-.506	-.370	-.325	-.374	-.382	-.371	-.357	-.340	-.314	-.350	-.348	-.378	-.405	-.392	-.428
	.800	-.402	-.273	-.215	-.248	-.263	-.269	-.271	-.274	-.274	-.306	-.281	-.287	-.292	-.268	-.332
	.900	-.332	-.207	-.109	-.079	-.079	-.085	-.089	-.117	-.175	-.183	.120	-.101	-.095	-.099	-.245
	.950	-.277	-.167	-.045	.029	.042	.056	.052	-.002	.004	-.013	.031	.043	.023	-.004	-.191
Lower surface	.0375	.860	.827	.771	.646	.509	.287	.068	-.307	-.727	-.653	.232	.144	.461	.682	.834
	.075	.726	.691	.588	.469	.359	.190	.036	-.195	-.473	-.423	.149	.085	.307	.489	.639
	.150	.521	.483	.437	.335	.249	.127	.024	-.121	-.306	-.273	.089	.054	.209	.348	.475
	.250	.378	.356	.316	.236	.164	.073	.005	-.104	-.231	-.210	.059	.029	.141	.253	.353
	.350	.290	.271	.240	.171	.116	.042	-.011	-.098	-.194	-.181	.072	-.001	.089	.178	.258
	.450	.206	.197	.174	.119	.069	.016	-.023	-.098	-.177	-.170	.080	-.017	.045	.119	.177
	.550	.123	.122	.112	.067	.029	-.015	-.050	-.109	-.167	-.163	.093	-.042	.010	.072	.106
	.650	.055	.066	.067	.040	.008	-.023	-.050	-.091	-.134	-.136	.084	-.048	-.012	.033	.044
	.750	.008	.029	.043	.035	.012	-.001	-.019	-.045	-.067	-.075	.044	-.021	-.007	.023	.003
	.850	-.046	-.016	.026	.040	.025	.018	.013	.004	.004	-.002	.008	.007	.010	.026	-.035
	.925	-.095	-.038	.019	.058	.051	.056	.066	.074	.089	.085	.073	.056	.036	.040	-.066
	.975	-.158	-.120	-.045	.037	.077	.098	.121	.154	.200	.193	.164	.121	.069	.071	-.105
	a1.000	-.031	-.010	.203	.263	.303	.332	.336	.240	.360	.301	.271	.292	.253	.203	-.031

aFaired value.

NACA

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) — Continued

(g) N = 1350 rpm; $\beta_{0.75R}$ = 44.24°.

	1.555	1.656	1.729	1.866	1.950	2.043	2.172	2.289	2.401	2.440	2.455	2.329	2.223	2.127	1.949	1.906	1.792	1.690	1.596
J																			
M_x	.579	.598	.608	.629	.637	.650	.666	.685	.702	.708	.711	.691	.674	.659	.653	.629	.615	.599	.590
α_x'	10.81	9.14	7.97	5.87	4.62	3.30	1.57	.06	-1.31	-1.76	-1.93	.42	.91	2.17	4.64	5.27	6.99	8.59	10.12
$\Delta\beta$	.27	.26	.26	.25	.25	.23	.23	.21	.20	.19	.19	.21	.22	.23	.25	.25	.26	.26	.27
α_1	2.83	2.57	2.40	2.03	1.83	1.65	1.18	.68	.35	-.02	.13	.52	.81	1.16	1.46	1.91	2.24	2.52	2.81
c_n	.9796	.8947	.8364	.7165	.6459	.5866	.4199	.2442	.1261	-.0077	-.0465	.1869	.2889	.4128	.5096	.6733	.7855	.8771	.9763
c_m	-.0549	-.0271	-.0321	-.0496	-.0418	-.0566	-.0349	-.0414	-.0450	-.0515	-.0474	-.0389	-.0361	-.0316	-.0271	-.0300	-.0244	-.0163	-.0476
c_o	-.0318	-.0427	-.0430	-.0364	-.0300	-.0340	-.0272	-.0114	-.0054	-.0047	-.0008	-.0024	-.0051	-.0147	-.0216	-.0367	-.0488	-.0575	-.0557

	c/b								Pressure coefficient, P											
Upper surface	0.000	1.086	1.092	1.095	1.102	1.104	1.110	1.116	1.123	1.130	1.132	1.133	1.126	1.119	1.113	1.111	1.102	1.097	1.092	1.089
	.025	-1.209	-1.330	-1.321	-1.209	-1.166	-1.083	-1.000	-.291	a.119	a.165	a0	-.230	-.309	a-.502	a-.761	a-1.412	a-1.702	a-1.785	a-1.871
	.050	-1.435	-1.502	-1.482	-1.389	-1.330	-1.243	-1.150	-.306	-.103	.056	.068	-.109	-.545	-.762	-1.506	-1.804	-1.892	-1.981	-1.542
	.100	-1.602	-1.623	-1.586	-.921	-.840	-.775	-.503	-.289	-.188	-.013	-.052	-.222	-.379	-.556	-.718	-.804	-1.240	-1.776	-1.542
	.200	a-1.311	-1.278	-1.019	-.784	-.848	-.667	-.515	-.364	-.261	-.179	-.208	-.344	-.443	-.553	-.649	-.749	-.875	-1.174	-1.239
	.300	-1.060	-.924	-.767	-.708	-.749	-.603	-.508	-.413	-.335	-.290	-.298	-.387	-.460	-.535	-.592	-.686	-.726	-.838	-1.028
	.400	-.841	-.722	-.638	-.618	-.663	-.546	-.479	-.412	-.354	-.327	-.326	-.392	-.446	-.497	-.533	-.604	-.630	-.653	-.801
	.500	-.674	-.567	-.546	-.559	-.587	-.517	-.474	-.424	-.366	-.376	-.367	-.413	-.454	-.486	-.502	-.550	-.563	-.531	-.622
	.600	-.554	-.450	-.458	-.499	-.542	-.485	-.463	-.434	-.412	-.419	-.403	-.428	-.454	-.469	-.469	-.497	-.496	-.434	-.485
	.700	-.457	-.351	-.357	-.409	-.494	-.418	-.418	-.403	-.396	-.416	-.395	-.401	-.414	-.416	-.400	-.410	-.400	-.337	-.382
	.800	-.364	-.253	-.224	-.259	-.412	-.285	-.298	-.299	-.304	-.333	-.309	-.303	-.306	-.296	-.271	-.265	-.252	-.282	-.285
	.900	-.891	-.178	-.092	-.058	-.266	-.069	-.085	-.091	-.100	-.134	-.109	-.097	-.097	-.080	-.063	-.061	-.060	-.122	-.214
	.950	-.239	-.109	-.018	.046	-.056	.062	.065	.064	.059	.026	.049	.057	.054	.063	.060	.054	.045	-.049	-.140

	c/b																			
Lower surface	.0375	.833	.760	a.748	.623	.019	.361	.155	-.097	-.393	-1.080	-.680	-.195	.024	.244	.408	.585	a.650	a.670	a.728
	.075	.658	.634	a.591	.479	.523	.266	.098	-.073	-.248	-.433	-.350	-.137	-.045	.105	.266	.419	.518	.533	a.585
	.150	.492	.448	.416	.336	.384	.186	.069	-.047	-.167	-.316	-.231	-.091	.001	.110	.200	.307	.387	.424	.463
	.250	.365	.330	.305	.241	.271	.120	.031	-.041	-.116	-.229	a-.175	a-.072	-.020	.066	.138	.222	.287	.316	.350
	.350	.263	.238	.220	.166	.189	.069	-.008	-.060	-.124	-.215	a-.170	a-.080	a-.041	.027	.083	.152	a.214	.226	.253
	.450	.193	.176	.164	.092	.122	.020	-.040	-.085	-.131	a-.214	a-.168	-.092	a-.062	.007	.039	.095	.144	.153	a.164
	.550	.064	.077	.076	.041	.087	a-.013	a-.060	a-.103	-.138	a-.211	a-.160	a-.107	a-.082	-.040	a.002	a.039	.083	.090	a.088
	.650	.031	.036	.045	.022	-.011	-.025	-.070	a-.112	-.140	a-.201	a-.153	a-.120	a-.100	-.078	a-.029	a-.003	.033	.035	.037
	.750	-.026	.001	.033	.020	0	-.020	-.071	-.111	-.135	-.187	-.140	-.130	-.110	-.090	-.059	-.030	-.007	-.013	.010
	.850	-.061	.046	.025	.039	.006	.028	.068	-.085	-.121	-.161	-.120	-.130	-.111	-.099	-.082	-.032	-.092	-.031	.020
	.925	-.079	.056	.054	.025	.044	.161	-.023	-.032	-.050	-.060	-.069	-.118	-.085	-.087	-.091	-.010	-.015	0	.073
	.975	-.064	.023	.112	.294	.116	.370	.121	.068	-.024	.135	.081	.020	-.020	.010	-.025	.099	.075	.064	.049
	1.000	-.005	.097	.204	.456	.232	.605	.382	.402	.361	.400	.372	.341	-.387	.352	.354	.304	.254	.153	.153

a Faired value.

NACA

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) — Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.24°.

J	1.990	2.104	2.199	2.319	2.417	2.468	2.377	2.268	2.147	2.052
M_x	.758	.779	.795	.818	.838	.847	.828	.807	.784	.768
α_x'	4.06	2.48	1.20	-.31	-1.48	-2.08	-1.02	.34	1.89	3.18
$\Delta\beta$	.37	.34	.32	.29	.27	.26	.28	.30	.33	.35
α_1	2.03	1.63	1.24	.75	.20	-.05	.26	.75	1.30	1.72
c_n	.7202	.5768	.4484	.2684	.0719	-.0167	.0919	.2684	.4627	.6100
c_m	-.0476	-.0497	-.0557	-.0690	-.0778	.0825	.0877	-.0721	-.0692	-.0525
c_a	-.0382	-.0286	-.0180	-.0117	.0039	.0039	.0027	.0006	-.0108	-.0262
c/b	Pressure coefficient, P									
Upper surface										
0.000	1.152	1.161	1.168	1.178	1.187	1.192	1.183	1.174	1.163	1.157
.025	-1.081	-.828	-.433	-.081	a.436	.450	.335-	.095	-.267	-.730
.050	-.992	-.582	-.321	-.060	.136	.214	.158	-.058	-.340	-.681
.100	-.912	-.660	-.465	-.248	-.067	.014	-.018	-.187	-.414	a-.646
a.200	-.918	-.769	-.638	-.392	-.228	-.197	-.236	-.379	-.614	-.763
.300	-.961	-.778	-.636	-.468	-.325	-.264	-.350	-.502	-.674	-.851
.400	-.873	a-.736	-.611	-.471	-.369	-.321	-.390	-.489	-.634	-.771
.500	-.678	-.705	-.645	-.552	-.453	-.410	-.475	-.574	-.662	-.692
.600	-.526	-.602	-.685	-.632	-.574	-.540	-.592	-.659	-.670	-.552
.700	-.416	a-.435	-.414	-.596	-.642	-.623	-.668	-.540	-.469	-.456
.800	-.246	-.249	-.249	-.248	-.264	-.331	-.281	-.271	-.263	-.252
.900	a-.032	-.019	-.018	-.024	-.096	-.024	-.038	-.036	-.025	-.021
.950	.084	.091	.098	.099	.098	.100	.088	.090	.085	.080
Lower surface										
.0375	.471	.278	.087	-.231	-.699	-.846	-.698	-.177	.157	.365
.075	.338	.191	.055	-.144	-.564	-.751	-.413	-.115	.102	.255
.150	.244	.134	.041	-.083	-.194	-.552	-.229	-.069	.070	.178
.250	.165	.075	.006	-.085	-.188	-.216	-.182	-.068	.029	.109
.350	.114	.038	-.018	-.103	-.194	-.218	-.183	-.086	.006	.070
.450	.067	.006	-.040	-.118	-.198	-.232	-.189	-.107	-.026	.028
.550	.025	-.035	-.081	-.147	-.212	-.243	-.203	-.134	-.066	-.011
.650	-.001	-.048	-.087	-.136	-.184	-.205	-.183	-.132	-.077	-.031
.730	.013	-.023	-.048	-.078	-.109	-.119	-.114	-.084	-.046	-.012
.850	.030	.007	.005	-.014	-.026	-.027	-.030	-.020	-.006	.012
.925	.057	.050	.050	.059	.060	.065	.053	.047	.041	.048
.975	.070	.067	.086	.114	.125	.139	.118	.099	.072	.062
a1.000	.304	.353	.337	.316	.301	.301	.331	.281	.323	.313

a Faired value.

NACA

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) — Continued

(1) M = 0.56; $\beta_{0.75R}$ = 44.24°.

J	2.043	2.061	2.101	2.145	2.178	2.227	2.299	2.334	2.392	2.441	2.509
$M_{x'}$	.856	.847	.843	.833	.822	.812	.803	.793	.787	.780	.766
$\alpha_{x'}$	3.30	3.06	2.51	1.91	1.49	.85	-.05	-.48	-1.19	-1.78	-2.56
$\Delta\beta$	.41	.41	.39	.37	.36	.34	.31	.29	.27	.25	.22
α_1	1.58	1.58	1.51	1.37	1.30	1.08	.92	.78	.55	.37	.11
c_n	.5626	.5613	.5342	.4884	.4645	.3871	.3290	.2774	.1961	.1310	.0387
c_m	-.0785	-.0788	-.0765	-.0749	-.0700	-.0682	-.0670	-.0734	-.0703	-.0745	-.0804
c_o	.0099	.0065	.0046	.0010	-.0020	-.0189	-.0041	.0020	.0026	.0018	.0054

Pressure coefficient, P

	c/b											
Upper surface	0.000	1.196	1.192	1.190	1.185	1.180	1.176	1.172	1.168	1.165	1.162	1.156
	.025	-.151	-.174	-.183	-.206	-.232	-.256	-.276	[a]-.094	[a].020	[a].090	.410
	.050	-.323	-.343	-.355	-.384	-.410	-.438	-.350	-.187	-.073	-.001	.084
	.100	-.451	-.471	-.457	-.439	-.423	-.377	-.311	-.245	-.168	-.114	-.048
	[a].200	-.656	-.674	-.620	-.549	-.545	-.448	-.395	-.375	-.312	-.253	-.190
	.300	-.742	-.749	-.712	-.671	-.650	[a]-.534	[a]-.488	-.460	-.384	-.339	-.283
	.400	-.706	-.725	-.705	-.686	-.665	-.608	-.532	-.478	-.419	-.382	-.333
	.500	-.778	-.794	-.775	-.743	-.712	-.666	-.599	-.550	-.491	-.451	-.401
	.600	-.847	-.863	-.845	-.814	-.794	-.744	-.683	-.623	-.551	-.507	-.459
	.700	-.462	-.494	-.574	-.699	-.692	-.635	-.519	-.486	-.465	-.455	-.436
	.800	-.316	-.306	-.271	-.230	-.230	-.250	-.279	-.301	-.308	-.322	-.344
	.900	-.252	-.222	-.166	-.079	-.045	-.038	-.047	-.065	-.075	-.092	-.107
	.950	-.189	-.155	-.103	-.010	.049	.062	.039	-.022	[a].038	-.015	.013
Lower surface	.0375	.320	.289	.242	.163	.091	.012	-.079	-.157	-.283	-.601	-.952
	.075	.224	.212	.172	.115	.067	-.005	-.084	-.157	-.232	-.273	-.466
	.150	.175	.160	.129	.085	.046	-.005	-.092	-.096	-.149	-.204	-.286
	.250	.119	.101	.075	.042	.013	-.025	-.057	-.095	-.138	-.176	-.215
	.350	.063	.051	.033	.004	-.019	-.050	-.077	-.105	-.134	-.160	-.193
	.450	.007	-.002	-.017	-.041	-.059	-.082	-.099	-.119	-.139	-.158	-.182
	.550	-.064	-.070	-.080	-.095	-.108	-.123	-.130	-.141	-.152	-.166	-.181
	.650	-.104	-.107	-.113	-.119	-.123	-.129	-.145	-.140	-.145	-.165	-.195
	.750	-.101	-.117	-.127	-.103	-.095	-.090	-.079	-.085	-.099	-.117	-.091
	.850	-.106	-.096	-.084	-.067	-.053	-.041	-.023	-.017	-.010	-.010	-.004
	.925	-.103	-.084	-.059	-.022	.005	.026	.049	.059	.071	.076	.092
	.975	[a]-.080	[a]-.045	[a]-.002	[a].060	[a].068	.063	.097	.115	.134	.142	.175
	[a]1.000	.070	.060	.080	.170	.210	.232	.239	.210	.250	.230	.290

[a] Faired value.

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) — Continued

(j) M = 0.60; $\beta_{0.75R}$ = 44.24°.

J	2.053	2.080	2.120	2.139	2.185	2.213	2.251	2.298	2.350	2.398	2.466
M_x	.905	.911	.894	.890	.884	.888	.876 -	.871	.857	.848	.834
α_x'	3.17	2.80	2.26	2.01	1.40	1.04	.55	-.04	-.68	-1.26	-2.07
$\Delta\beta$	.44	.43	.41	.40	.38	.36	.35	.32	.30	.27	.24
α_1	1.20	1.24	1.14	1.07	.95	.78	.73	.59	.46	.33	.19
c_n	.4263	.4389	.4030	.3797	.3399	.2801	.2600	.2112	.1636	.1177	.0676
c_m	-.0829	-.0825	-.0752	-.0721	-.0660	-.0602	-.0603	-.0594	-.0608	-.0660	-.0720
c_0	.0253	.0229	.0225	.0211	.0175	.0171	.0109	.0051	.0011	-.0044	-.0065

	c/b					Pressure coefficient, P						
Upper surface	0.000	1.227	1.225	1.216	1.214	1.211	1.213	1.207	1.204	1.197	1.192	1.185
	.025	.081	.070	.043	.037	.022	.029	.011	-.004	-.028	-.048	-.110
	.050	-.087	-.100	-.130	-.138	-.154	-.146	-.119	-.018	.020	.078	.089
	.100	-.228	-.252	-.281	-.286	-.287	-.239	-.224	-.176	-.154	-.108	-.107
	a.200	-.405	-.472	-.470	-.442	-.443	-.364	-.373	-.379	-.374	-.290	-.284
	.300	-.550	-.554	-.557	-.542	-.513	-.469	-.457	-.423	-.410	-.359	-.349
	.400	-.562	-.570	-.579	-.563	-.547	-.507	-.494	-.446	-.425	-.391	-.398
	.500	-.633	-.642	-.656	-.645	-.621	-.573	-.556	-.525	-.518	-.484	-.491
	.600	-.701	-.711	-.732	-.723	-.699	-.657	-.656	-.631	-.630	-.610	-.618
	.700	-.786	-.802	-.822	-.812	-.800	-.761	-.758	-.737	-.729	-.709	-.710
	.800	-.354	-.361	-.350	-.309	-.267	-.241	-.235	-.222	-.246	-.265	-.312
	.900	-.312	-.319	-.307	-.265	-.222	-.191	-.171	-.198	-.086	-.037	-.082
	.950	-.288	-.307	-.301	-.262	-.216	-.181	-.155	-.100	-.047	.035	.029
Lower surface	.0375	.247	.232	.153	.113	.028	-.049	-.137	-.298	-.461	-.653	-.841
	.075	.185	.174	.111	.081	.018	-.033	-.092	-.178	-.377	-.491	-.727
	.150	.151	.142	.090	.068	.024	-.007	-.044	-.098	-.149	-.180	-.366
	.250	a.101	a.092	a.047	a.031	-.009	-.032	-.065	-.113	-.158	-.191	-.247
	.350	.044	.038	-.005	-.019	-.049	-.069	-.098	-.137	-.173	-.200	-.254
	.450	-.015	-.021	-.062	-.074	-.098	-.114	-.138	-.168	-.196	-.212	-.259
	.550	-.096	-.102	-.142	-.150	-.170	-.184	-.201	-.221	-.238	-.238	-.271
	.650	-.164	-.170	-.207	-.211	-.222	-.234	-.240	-.243	-.240	-.222	-.244
	.750	-.171	-.178	-.210	-.208	-.205	-.210	-.202	-.197	-.177	-.151	-.185
	.850	-.184	-.191	-.215	-.202	-.185	-.173	-.157	-.145	-.131	-.084	-.089
	.925	-.170	-.178	-.200	-.188	-.159	-.139	-.114	-.074	-.042	.008	.003
	.975	-.258	-.268	-.295	-.274	-.221	-.188	-.146	-.062	-.027	.053	.061
	a1.000	-.230	-.254	-.245	-.200	-.175	-.135	-.090	-.050	.025	.150	.105

a Faired value.

NACA

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(3.00)(07.45) PROPELLER BLADE SECTION (x = 0.75) — Concluded

(k) $M = 0.65$; $\beta_{0.75R} = 44.24°$.

J	2.031	2.056	2.081	2.109	2.153	2.185	2.211	2.245	2.284	2.316	2.354
M_r	1.043	1.036	1.029	1.021	1.010	.997	.989	.981	.965	.959	.951
α_r'	3.48	3.13	2.79	2.41	1.82	1.40	1.06	.62	.13	-.27	-.73
$\Delta\beta$	.53	.52	.50	.49	.46	.45	.43	.41	.39	.37	.35
α_1	.97	1.02	1.00	.94	.87	.75	.62	.50	.31	.13	-.07
c_n	.3482	.3609	.3551	.3325	.3089	.2646	.2193	.1798	.1106	.0479	-.0243
c_m	-.1030	-.1096	-.1126	-.1112	-.1110	-.0987	-.0902	-.0835	-.0735	-.0619	-.0428
c_c	.0400	+.0441	+.0453	+.0458	+.0445	+.0423	+.0383	+.0358	+.0354	.0318	.0270

	a/b	Pressure coefficient, P										
Upper surface	0.000	1.301	1.297	1.293	1.287	1.280	1.273	1.268	1.263	1.254	1.251	1.247
	.025	.323	.315	.307	.300	.285	.270	.257	.247	.228	.216	.206
	.050	.221	.197	.186	.179	.163	.146	.133	.121	.102	.088	.076
	.100	-.018	-.044	-.051	-.050	-.050	-.035	-.023	-.010	.006	.025	.044
	.200	-.233	-.245	-.259	-.244	-.250	-.210	-.212	-.190	-.160	-.135	-.113
	.300	-.303	-.326	-.331	-.328	-.324	-.304	-.289	-.282	-.270	-.255	-.245
	.400	-.334	-.359	-.368	-.365	-.359	-.344	-.336	-.326	-.319	-.303	-.285
	.500	-.399	-.422	-.430	-.430	-.432	-.421	-.412	-.401	-.386	-.369	-.359
	.600	-.467	-.492	-.502	-.503	-.504	-.495	-.489	-.480	-.476	-.472	-.483
	.700	-.536	-.566	-.580	-.588	-.594	-.587	-.582	-.579	-.577	-.573	-.570
	.800	-.611	-.647	-.666	-.674	-.684	^{a}-.687	-.683	-.682	-.690	-.688	-.683
	.900	-.657	-.709	-.741	-.763	-.785	-.800	-.808	-.809	-.779	-.605	-.402
	.950	-.546	-.638	-.691	-.729	-.724	^{a}-.681	-.578	-.518	-.448	-.378	-.312
Lower surface	.0375	.217	.218	.183	.125	.050	-.040	-.122	-.196	-.311	-.394	-.465
	.075	.173	.174	.143	.103	.042	-.027	-.088	-.145	-.249	-.336	-.417
	.150	.160	.155	.130	.099	.061	.049	-.006	-.063	-.185	-.273	-.346
	.250	.135	^{a}.120	.106	^{a}.074	.050	.022	-.002	^{a}-.030	-.108	-.193	-.279
	.350	.077	^{a}.073	.046	^{a}.030	-.013	^{a}-.020	^{a}-.055	^{a}-.090	-.116	-.170	-.242
	.450	-.026	.017	-.004	-.026	-.054	-.079	-.106	-.126	-.162	-.177	-.209
	.550	-.035	-.047	-.064	^{a}-.090	-.108	-.128	^{a}-.165	-.175	-.218	-.239	^{a}-.268
	.650	-.116	-.127	-.147	^{a}-.153	-.187	-.208	^{a}-.220	-.251	-.289	-.314	-.330
	.750	-.163	^{a}-.184	^{a}-.207	-.211	-.233	-.306	-.276	-.296	-.336	-.352	-.372
	.850	-.214	-.226	^{a}-.242	-.263	^{a}-.279	-.302	-.324	-.338	-.367	-.385	-.403
	.925	-.221	-.247	-.255	^{a}-.277	^{a}-.300	-.309	-.332	-.350	-.389	-.410	-.432
	.975	-.243	-.260	-.280	-.291	-.313	-.335	-.354	-.368	-.405	-.425	-.442
	^{a}1.000	-.200	-.225	-.250	-.255	-.285	-.160	.010	.130	-.130	-.205	-.130

^{a}Faired value.

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.92°.

J	0.690	0.785	0.862	0.964	1.067	1.163	1.262	1.384	1.435	1.315	1.224	1.118	1.011	0.931	0.833	0.750
M_x	.432	.435	.457	.463	.466	.481	.489	.500	.511	.494	.492	.471	.461	.459	.451	.426
α_x'	12.75	10.76	9.17	7.11	5.10	3.27	1.44	-.74	-1.63	.48	2.13	4.12	6.19	7.77	9.76	11.48
$\Delta\beta$	.22	.22	.22	.21	.20	.19	.18	.17	.17	.18	.19	.20	.21	.21	.22	.22
α_1	2.84	2.89	2.53	2.31	1.98	1.55	1.13	.69	.41	.92	1.28	1.72	2.09	2.41	2.73	2.99
c_n	.8299	.8704	.7693	.7149	.6186	.4887	.3601	.2210	.1329	.2929	.4067	.5395	.6498	.7401	.8268	.8905
c_m	-.0522	-.0400	-.0303	-.0414	-.0516	-.0505	-.0549	-.0530	-.0620	-.0539	-.0529	-.0529	-.0510	-.0430	-.0340	-.0598
c_0	-.0071	-.0194	-.0184	-.0154	-.0135	-.0037	.0024	.0032	.0143	.0021	.0010	-.0016	-.0073	-.0135	-.0186	-.0119

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.048	1.049	1.054	1.055	1.056	1.059	1.061	1.064	1.067	1.062	1.062	1.057	1.053	1.054	1.052	1.047
.025	-.472	-.459	-.430	-.413	-.396	-.360	-.333	a-.262	a.501	a-.239	-.338	-.366	-.396	-.431	-.449	-.464
.050	-1.664	-1.652	-1.569	-1.545	-1.475	-1.388	a-.516	a-.887	-.009	a-.319	-.493	-.811	-1.310	-1.375	-1.415	-1.437
.100	-1.766	-1.749	-1.656	-1.629	-.925	-.710	-.501	a-.307	-.226	a-.340	a-.621	a-.835	-.942	-1.549	-1.702	-1.370
.200	-.880	-1.267	-1.059	-.842	-.689	-.558	-.442	-.307	-.256	-.354	-.499	-.645	-.699	-.877	-1.228	-1.200
.300	-.635	-.902	-.718	-.617	-.590	-.488	-.405	-.305	-.267	-.357	-.433	-.531	-.610	-.640	-.859	-1.064
.400	-.607	-.642	-.540	-.544	-.517	-.442	-.383	-.307	-.279	-.347	-.403	-.474	-.537	-.546	-.612	-.866
.500	-.533	-.507	-.451	-.492	-.480	-.421	-.378	-.326	a-.301	-.355	-.398	-.446	-.488	-.483	-.474	-.668
.600	-.464	-.419	-.380	-.435	-.438	-.403	-.374	-.341	-.322	-.360	-.388	-.418	-.437	-.420	-.382	-.498
.700	-.380	-.333	-.307	-.361	-.381	-.363	-.347	-.326	-.319	-.337	-.356	-.369	-.373	-.342	-.297	-.365
.800	-.347	-.259	-.216	-.258	-.280	-.280	-.280	-.261	-.261	-.281	-.283	-.279	-.266	-.279	-.219	-.274
.900	-.310	-.170	-.112	-.110	-.105	-.106	-.117	-.136	-.139	-.127	-.118	-.101	-.107	-.109	-.132	-.196
.950	-.273	-.121	-.052	-.026	.011	.012	.004	-.024	-.042	-.009	.001	.015	-.003	-.031	-.085	-.150
Lower surface																
.0375	.830	.814	.746	.686	.561	.384	.172	-.153	-.307	.030	.251	.478	.630	.723	.778	.797
.075	.672	.654	.584	.528	.463	.393	a.138	-.095	-.169	.020	.171	.347	.474	.557	.606	.632
.150	.509	.491	.433	.378	.296	.191	.086	-.051	-.113	.017	.121	.242	.339	.401	.455	.480
.250	.358	.345	.299	.256	.188	.111	.038	-.072	-.118	.003	.071	.167	.234	.291	.331	.353
.350	.261	.259	.228	.184	.128	.063	.001	-.085	-.118	-.041	.021	.100	.159	.206	.238	.257
.450	.180	.184	.157	.125	.080	.033	-.021	-.088	-.110	-.059	-.003	.061	.107	.145	.171	.183
.550	.112	.125	.107	.086	.050	.012	-.025	-.080	-.099	-.056	-.013	.038	.075	.098	.115	.124
.650	.047	.067	.058	.046	.025	-.007	-.032	-.075	-.089	-.054	-.025	.012	.042	.056	.061	.068
.750	.010	.039	.039	.037	.032	.012	.012	a-.010	a-.050	-.016	-.003	.023	.048	.043	.039	.028
.850	-.048	.002	.017	.029	.032	.032	.022	.016	-.003	-.002	.010	.019	.031	.037	.014	-.006
.925	-.099	-.018	.012	.037	.050	.058	.059	.059	.055	.062	.060	.059	.056	.051	.034	-.032
a.975	-.076	.021	.047	.073	.129	.122	.121	.126	.130	.106	.112	.097	.104	.084	.032	-.011
a1.000	0	.106	.137	.156	.206	.204	.202	.191	.200	.162	.163	.154	.197	.157	.095	.064

a Faired value.

NACA

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.92°.

	J	0.709	0.779	0.859	0.938	1.018	1.109	1.192	1.284	1.384	1.471	1.419	1.329	1.236	1.146	1.066	0.982	0.892	0.819	0.754
	M_x	.516	.533	.543	.557	.558	.573	.578	.586	.598	.610	.599	.595	.587	.568	.570	.550	.540	.513	.510
	α_x'	12.35	10.88	9.23	7.63	6.05	4.29	2.72	1.03	-.74	-2.23	-1.35	.23	1.91	3.59	5.09	6.76	8.56	10.05	11.40
	$\Delta\beta$	.30	.30	.30	.29	.29	.27	.26	.25	.23	.22	.23	.23	.24	.26	.27	.28	.29	.30	.30
	α_1	3.22	3.07	2.81	2.54	2.38	1.91	1.56	1.11	.57	.24	.43	.84	1.32	1.76	2.16	2.46	2.70	2.90	3.18
	c_n	.9518	.9248	.8575	.7842	.7402	.6007	.4934	.3532	.1840	.0764	.1383	.2690	.4198	.5536	.6748	.7633	.8282	.8799	.9530
	p_m	-.0475	-.0380	-.0257	-.0293	-.0343	-.0441	-.0534	-.0516	-.0622	-.0648	-.0647	-.0565	-.0602	-.0498	-.0529	-.0393	-.0234	-.0285	-.0406
	p_a	-.0285	-.0357	-.0370	-.0337	-.0457	-.0264	-.0149	-.0062	.0057	.0056	.0045	-.0057	-.0076	-.0219	-.0303	-.0311	-.0425	-.0390	-.0358
	c/b	Pressure coefficient, P																		
Upper surface	0.000	1.068	1.072	1.075	1.079	1.080	1.084	1.086	1.088	1.092	1.096	1.092	1.091	1.089	1.083	1.084	1.078	1.075	1.067	1.066
	.025	-1.334	-1.316	-1.286	-1.263	-1.799	-1.066	-1.690	-.374	.120	.250	.165	-.151	-.514	-.899	-1.337	-1.276	-1.445	-1.318	-1.344
	.050	-1.597	-1.560	-1.538	-1.507	-1.531	a.948	-1.411	-.378	-.091	.104	.011	-.214	-.473	-.777	-1.145	-1.589	-1.614	-1.648	-1.728
	.100	-1.640	-1.578	-1.678	-1.577	-1.026	-.586	a.764	-.379	-.193	-.034	-.115	-.282	-.461	a.674	-.866	-1.339	-1.685	-1.693	a1.711
	.200	a1.189	a1.209	a1.160	a.951	-.694	a.643	a.529	-.395	-.275	a.189	-.245	-.341	-.456	a.602	a.709	a.874	a1.047	a1.217	a1.284
	.300	-.881	-.942	-.830	-.657	-.650	-.574	-.499	-.407	-.312	-.237	-.281	-.356	-.448	-.544	-.633	-.665	-.731	-.874	-.946
	.400	-.709	-.718	-.620	-.551	-.565	-.510	-.546	-.392	-.321	-.263	-.295	-.355	-.423	-.492	-.562	-.557	-.581	-.646	-.707
	.500	-.594	-.594	-.466	-.489	-.479	-.509	-.473	-.437	-.339	-.297	-.320	-.364	-.416	-.462	-.515	-.517	-.486	-.505	-.576
	.600	-.498	-.460	-.396	-.410	-.455	-.437	-.418	-.392	-.354	-.323	-.338	-.369	-.408	-.441	-.474	-.454	-.406	-.405	-.483
	.700	-.406	-.356	-.310	-.326	-.377	-.377	-.372	-.363	-.336	-.320	-.326	-.347	-.370	-.388	-.406	-.369	-.323	-.242	-.382
	.800	-.357	-.290	-.226	-.224	-.267	-.275	-.286	-.291	-.281	-.279	-.282	-.284	-.294	-.291	-.298	-.255	a.212	-.167	-.303
	.900	-.304	-.225	-.137	-.093	-.093	-.086	-.093	-.113	-.113	-.128	-.124	-.113	a.166	-.095	-.095	-.110	-.095	-.110	-.217
	.950	-.258	-.175	-.086	-.020	.012	.032	.035	.013	.009	-.016	-.009	.007	a.086	.023	a.107	-.002	-.048	-.122	-.172
Lower surface	.0375	.841	.813	.767	.707	.630	.510	.368	.122	-.157	-.363	-.295	-.009	.232	.449	.556	.690	.746	.787	.843
	.075	a.694	a.674	a.606	a.575	a.476	.375	.245	.083	-.086	-.270	-.168	0	.160	.320	.406	.520	.577	.612	.672
	.150	.515	.591	.449	.408	.349	.275	.201	.055	-.060	-.176	-.110	.004	.109	.217	.279	.378	.425	.462	.505
	.250	.379	.360	.325	.289	.239	.182	.124	.024	-.062	-.149	-.103	-.015	.065	.152	.195	.272	.315	.340	.374
	.350	.269	.255	.232	.206	.163	.116	.066	-.011	-.082	-.146	-.110	-.046	.019	.089	.119	.189	.218	.244	.267
	.450	.185	.180	.162	.147	.115	.073	.035	-.032	-.084	-.135	-.108	-.059	-.006	.049	.074	.129	.154	.171	.187
	.550	.119	.117	.110	.103	.079	.045	.015	-.037	-.077	-.119	-.096	-.059	-.013	.028	.042	.089	.102	.114	.126
	.650	.051	.057	.059	.063	.042	.019	-.002	-.045	-.073	-.104	-.085	-.059	-.026	.004	.012	.054	.048	.060	.063
	.750	.007	.018	.040	.054	.042	.030	.017	-.013	-.035	-.050	-.040	-.027	-.004	.019	.017	.037	.019	-.002	-.013
	.850	-.044	-.021	.011	.034	.036	.034	.031	.013	.004	.002	.005	.007	.017	.028	.017	.037	.015	-.026	-.042
	.925	-.088	-.057	-.006	.030	.040	.057	.066	.059	.062	.068	.067	.057	.057	.057	.036	.044	.015	.010	-.047
	a.975	.116	-.005	.034	.093	.130	.154	.173	.151	.161	.153	.172	.136	.134	.156	.074	.099	.064	.010	0
	a1.000	.076	.032	.105	.209	.279	.318	.305	.232	.271	.280	.291	.252	.304	.276	.134	.207	.189	.149	0

aFaired value.

NACA

NACA RM L50H03

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) — Continued

(c) N = 1600 rpm; $\beta_{0.75R}$ = 29.92°.

J	0.823	0.896	0.973	1.039	1.123	1.192	1.271	1.348	1.438	1.473	1.397	1.319	1.215	1.141	1.078	1.010	0.940	0.866
M_T	.648	.656	.667	.672	.683	.692	.698	.713	.721	.726	.719	.707	.697	.684	.670	.669	.664	.648
α_T'	9.97	8.48	6.94	5.64	4.02	2.72	1.27	-.11	-1.67	-2.28	-.97	.40	2.30	3.69	4.88	6.20	7.60	9.09
$\Delta\beta$	.39	.39	.39	.38	.37	.37	.36	.35	.33	.33	.34	.35	.36	.37	.38	.38	.39	.39
α_1	3.00	2.82	2.80	2.61	2.10	1.83	1.30	.84	.38	.23	.52	.95	1.52	1.93	2.21	2.47	2.71	2.88
c_n	.9087	.8662	.8723	.8175	.6614	.5794	.4163	.2683	.1242	.0757	.1682	.3043	.4826	.6071	.6946	.7693	.8380	.8793
c_m	-.0420	-.0253	-.0306	-.0314	-.0395	-.0426	-.0568	-.0630	-.0660	-.0689	-.0674	-.0611	-.0562	-.0481	-.0462	-.0425	-.0357	-.0216
c_c	-.0432	-.0448	-.0456	-.0397	-.0287	-.0340	-.0142	.0010	.0059	.0067	.0058	.0024	-.0162	-.0290	-.0243	-.0280	-.0337	-.0344

c/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.109	1.112	1.116	1.118	1.122	1.126	1.128	1.134	1.137	1.139	1.136	1.132	1.128	1.123	1.117	1.117	1.115	1.109
.025	-1.264	-1.645	-1.645	-1.610	-1.577	-1.529	-1.071	-.110	.199	.279	.137	-.140	-.621	-1.174	-1.309	-1.314	-1.338	-1.479
.050	-1.539	-1.799	-1.788	-1.743	-1.709	-1.062	-.466	-.211	.029	.101	.016	-.209	-.561	-.747	-1.597	-1.695	-1.859	-2.113
.100	-1.505	-2.038	-2.011	-1.961	-.820	-.673	-.484	-.308	-.130	-.071	-.131	-.303	-.549	-.744	-1.028	-1.767	-1.985	-2.312
.200	-1.213	-.925	-1.188	-.992	-.717	-.580	-.505	-.382	-.240	-.213	-.279	-.409	-.549	-.706	-.797	-.851	-.837	-1.014
.300	-.940	-.613	-.628	-.657	-.642	-.575	-.499	-.403	-.300	-.267	-.331	-.429	-.546	-.625	-.686	-.663	-.608	-.742
.400	-.726	-.549	-.572	-.573	-.558	-.516	-.466	-.396	-.323	-.300	-.342	-.413	-.496	-.546	-.593	-.587	-.559	-.646
.500	-.561	-.497	-.526	-.527	-.528	-.495	-.463	-.412	-.363	-.345	-.376	-.425	-.483	-.513	-.546	-.538	-.514	-.564
.600	-.436	-.435	-.474	-.475	-.480	-.467	-.454	-.422	-.391	-.379	-.396	-.429	-.464	-.476	-.497	-.489	-.461	-.477
.700	-.331	-.349	-.389	-.393	-.405	-.407	-.407	-.389	-.376	-.373	-.374	-.391	-.408	-.406	-.415	-.404	-.377	-.378
.800	-.261	-.231	-.250	-.258	-.267	-.285	-.302	-.297	-.290	-.300	-.291	-.292	-.290	-.276	-.278	-.259	-.254	-.287
.900	-.196	-.073	-.071	-.059	-.071	-.084	-.098	-.105	-.127	-.136	-.119	-.105	-.093	-.074	-.070	-.074	-.073	-.191
.950	-.160	.022	.040	.045	.042	.044	.038	.033	.009	-.004	.020	.035	.039	.043	.039	.036	.035	-.150
Lower surface																		
.0375	.793	a.736	a.677	a.651	a.605	a.499	a.202	a-.065	a-.315	a-.398	a-.214	a.010	.339	.491	a.566	a.622	a.722	a.707
.075	.647	.596	.535	.481	.423	.394	.107	-.055	-.257	-.328	-.165	0	.195	.329	.425	.484	.563	.543
.150	.477	.443	.390	.338	.251	.173	.074	-.038	-.178	-.225	-.117	0	.132	.230	.302	.351	.416	.388
.250	.351	.327	.288	.245	.170	.109	.032	-.049	-.150	-.184	-.104	-.022	.079	.155	.217	.256	.313	.271
.350	.270	.247	.213	.178	.113	.062	-.001	-.065	-.140	-.167	-.106	-.042	.041	.103	.152	.190	.238	.190
.450	.185	.177	.148	.119	.064	.021	-.032	-.084	-.140	-.161	-.116	-.067	0	.052	.092	.124	.167	.110
.550	.128	.130	.108	.083	.034	.002	-.044	-.084	-.127	-.144	-.104	-.070	-.015	.028	.060	.089	.128	.060
.650	.067	.084	.071	.049	.008	.018	-.052	-.080	-.114	-.123	-.096	-.070	-.032	.003	.028	.053	.086	.005
.750	.039	.076	.071	.055	.022	.005	-.019	-.036	-.057	-.062	-.044	-.031	-.005	.018	.036	.057	.083	-.013
.850	-.007	.060	.063	.051	.028	.021	.008	.001	-.003	-.004	-.004	.004	.016	.030	.036	.052	.071	-.044
.925	a-.011	.074	.089	.086	.072	.081	.061	.073	.075	.070	.078	.081	.081	.077	.071	.092	.084	-.063
.975	a.021	a.121	a.146	a.139	.142	a.153	.162	a.171	.155	a.155	.181	.164	.193	a.164	.141	a.156	.134	a-.031
1.000	a.149	.210	a.250	.227	.246	.234	.253	.262	.240	.240	.276	.247	.351	.286	.278	.239	.241	.042

a Faired value.

NACA

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) — Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.92°.

J		1.008	1.116	1.188	1.275	1.369	1.447	1.421	1.351	1.238	1.134
M_x		.834	.844	.855	.864	.880	.894	.886	.878	.858	.846
α_x'		6.24	4.16	2.80	1.20	−.48	−1.83	−1.38	−.16	1.87	3.81
$\Delta\beta$		.61	.59	.56	.53	.50	.47	.48	.50	.54	.58
α_1		2.98	2.37	1.91	1.23	.49	−.21	−.03	.62	1.43	2.18
c_n		.9348	.7470	.6064	.3941	.1583	−.0692	−.0096	.2006	.4558	.6870
c_m		−.0123	−.0979	−.1081	−.0916	−.0677	−.0596	−.0622	−.0736	−.0974	−.0920
c_c		−.0131	−.0122	.0003	.0064	.0124	.0104	.0104	.0049	.0076	−.0094
	c/b	Pressure coefficient, P									
Upper surface	0.000	1.186	1.191	1.196	1.200	1.208	1.216	1.212	1.207	1.197	1.192
	.025	a−.885	a−.760	a−.434	−.081	a.151	a.322	a.350	−.041	−.061	a−.658
	.050	−1.042	−.896	−.495	−.158	.065	.214	.210	a−.055	−.218	−.655
	.100	−.963	−.688	−.401	−.230	−.041	.087	.054	−.078	−.298	−.599
	.200	a−.989	a−.735	a−.554	a−.396	−.132	−.111	−.114	−.142	a−.416	a−.674
	.300	−1.057	−.819	−.671	−.512	−.342	−.237	−.269	−.376	−.566	−.790
	.400	−1.058	−.879	−.714	−.550	−.382	−.282	−.311	−.425	−.612	−.823
	.500	−1.076	−.894	−.775	−.581	−.445	−.364	−.393	−.477	−.635	−.836
	.600	−.679	−.932	−.792	−.682	−.549	−.453	−.473	−.570	−.727	−.915
	.700	−.515	−.468	−.790	−.741	−.627	−.560	−.582	−.651	−.779	−.492
	a.800	−.446	−.339	−.530	−.466	−.377	−.380	−.325	−.362	−.436	−.318
	.900	−.358	−.240	−.184	−.138	−.117	−.106	−.111	−.115	−.140	−.200
	.950	−.285	−.171	−.134	−.095	−.077	−.067	−.069	−.070	−.092	−.134
Lower surface	.0375	.605	.457	.312	.066	a−.071	−.735	−.703	−.241	.168	.420
	.075	.480	.357	a.255	.066	−.117	−.634	−.591	−.110	.137	.325
	.150	.371	.269	.180	.050	−.133	−.497	−.217	−.092	.093	.235
	.250	.272	.182	.109	.003	−.145	−.195	−.210	−.106	.045	.163
	.350	.199	.120	.057	−.033	−.161	−.264	−.230	−.126	.002	.102
	.450	.123	.051	−.005	−.084	−.196	−.283	−.266	−.164	−.054	.036
	.550	.071	.007	−.046	−.114	−.213	−.308	−.297	−.180	−.086	−.007
	.650	.016	−.039	−.085	−.144	−.228	−.376	−.313	−.200	−.120	−.050
	.750	0	−.041	−.075	−.116	−.166	−.251	−.209	−.150	−.098	−.046
	.850	−.036	−.052	−.073	−.093	−.114	−.124	−.119	−.103	−.079	−.051
	a.925	.001	−.017	−.020	−.012	−.014	−.015	−.014	−.005	−.002	−.006
	.975	.155	.126	.112	.117	.122	.127	.130	.128	.119	.128
	a1.000	.385	.359	.346	.309	.311	.315	.340	.302	.254	.338

a Faired value.

NACA

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) — Continued

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.92°.

J	1.122	1.181	1.244	1.298	1.363	1.402	1.391	1.331	1.265	1.203	1.150
M_x	.932	.939	.950	.957	.970	.975	.971	.959	.947	.937	.930
α_x'	4.04	2.93	1.76	.78	−.37	−1.05	−.86	.19	1.39	2.52	3.51
$\Delta\beta$	.66	.65	.63	.61	.59	.58	.58	.60	.62	.64	.66
α_1	1.92	1.62	1.21	.80	.29	−.04	.09	.49	.90	1.36	1.71
c_n	.6046	.5135	.3853	.2570	.0936	−.0148	.0296	.1559	.2864	.4315	.5382
c_m	−.1070	−.0985	−.0922	−.0789	−.0725	−.0667	−.0700	−.0730	−.0923	−.1048	−.1077
c_d	.0207	.0227	.0317	.0300	.0330	.0391	.0385	.0387	.0397	.0312	.0255

x/b	Pressure coefficient, P										
Upper surface											
0.000	1.235	1.240	1.246	1.250	1.257	1.260	1.258	1.251	1.244	1.239	1.235
a.025	−.185	−.194	−.071	.181	.341	.380	.380	.392	.394	.152	−.102
.050	−.297	−.295	−.177	−.015	.158	.236	.235	.219	.214	.036	−.156
.100	a−.399	a−.367	−.190	−.134	−.001	.089	.090	.050	−.017	−.116	−.236
.200	−.522	−.459	−.304	−.261	−.135	−.085	−.083	−.221	−.295	−.371	−.440
.300	−.602	−.521	−.431	−.350	−.222	−.176	−.187	−.304	−.378	−.463	−.550
.400	−.663	−.581	−.490	−.408	−.295	−.242	−.255	−.349	−.428	−.532	−.622
.500	−.707	−.635	−.559	−.463	−.357	−.311	−.327	−.403	−.491	−.592	−.661
.600	−.762	−.708	−.599	−.534	−.461	−.395	−.417	−.502	−.554	−.638	−.735
.700	−.845	−.759	−.699	−.638	−.525	−.490	−.501	−.571	−.653	−.728	−.806
.800	−.409	−.570	−.783	−.744	−.663	−.614	−.629	−.704	−.761	−.695	−.418
.900	−.376	−.369	−.372	−.375	−.617	−.713	−.688	−.399	−.352	−.355	−.352
.950	−.371	−.360	−.352	−.333	−.319	−.325	−.302	−.312	−.320	−.337	−.346
Lower surface											
.0375	.419	.290	.144	−.006	−.369	−.474	−.443	−.230	.054	.227	.358
.075	.339	a.245	.134	.028	−.262	−.390	−.353	−.046	.066	.116	.287
.150	.273	.191	.105	.032	−.025	−.276	−.227	−.041	.054	.145	.223
.250	.182	.109	.036	−.023	−.106	−.223	−.100	−.082	.004	.079	.147
.350	.119	.056	−.008	−.059	−.154	−.196	−.161	−.094	−.032	.034	.094
.450	.045	−.013	−.073	−.125	−.171	−.232	−.202	−.166	−.098	−.039	.017
.550	−.008	−.062	−.112	−.146	−.210	−.241	−.229	−.206	−.136	−.082	−.034
.650	−.074	−.133	−.189	−.221	−.276	−.312	−.298	−.257	−.209	−.199	−.099
.750	−.084	−.128	−.205	−.254	−.288	−.347	−.317	−.288	−.236	−.199	−.104
a.850	−.125	−.180	−.242	−.297	−.349	−.376	−.354	−.341	−.272	−.158	−.144
.925	−.147	−.184	−.218	−.272	−.313	−.320	−.305	−.171	−.242	−.142	−.153
.975	−.157	−.165	−.177	−.175	−.179	−.214	−.171	−.181	−.164	−.162	−.156
a1.000	−.103	−.102	−.101	−.091	−.060	−.100	−.015	−.070	−.051	−.051	−.010

aFaired value.

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) - Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.39°.

J	1.458	1.682	1.861	1.982	2.083	2.232	2.356	2.526	2.417	2.265	2.172	2.040	1.895	1.772	1.577
M_x	.492	.515	.540	.548	.558	.574	.594	.610	.594	.583	.567	.557	.540	.527	.512
α_x'	12.45	8.77	6.04	4.31	2.93	.96	-.57	-2.58	-1.31	.55	1.73	3.50	5.55	7.38	10.47
$\Delta\beta$	.22	.21	.20	.19	.19	.17	.16	.14	.15	.17	.18	.19	.20	.21	.22
α_1	3.01	2.44	1.99	1.70	1.45	1.02	.63	.18	.48	.90	1.20	1.51	1.93	2.25	2.67
c_n	1.0075	.8247	.6775	.5799	.4956	.3477	.2169	.0631	.1646	.3098	.4107	.5167	.6528	.7603	.8960
c_m	-.0855	-.0298	-.0432	-.0457	-.0502	-.0574	-.0606	-.0587	-.0548	-.0635	-.0655	-.0588	-.0464	-.0355	-.0410
c_c	-.0166	-.0287	-.0179	-.0143	-.0130	-.0042	-.0129	.0121	.0114	.0092	.0039	-.0035	-.0245	-.0331	-.0342
c/b							Pressure coefficient, P								
Upper surface															
0.000	1.062	1.067	1.075	1.077	1.080	1.085	1.091	1.096	1.091	1.087	1.082	1.079	1.075	1.071	1.067
.025	-1.262	-1.315	-1.180	-1.113	-1.028	a-.362	a-.133	.259	.123	-.046	-.382	-.566	-1.168	-1.353	-1.416
.050	-1.424	-1.460	-1.324	-1.249	-1.158	-.365	-.115	.149	.006	-.271	-.482	-.721	-1.064	-1.417	-1.528
.100	a-1.478	-1.560	-1.012	-.744	-.568	-.376	-.202	-.001	-.132	-.320	-.470	-.636	-.861	-1.465	-1.569
.200	-1.257	-1.159	-.768	-.607	-.474	-.370	-.293	-.181	-.246	-.371	-.461	-.569	-.699	-.920	-1.194
.300	-.986	-.780	-.632	-.525	a-.443	a-.453	-.359	-.320	-.288	-.373	-.452	-.523	-.614	-.701	-.875
.400	-.863	-.575	-.525	-.500	-.443	-.387	-.324	-.250	-.301	-.365	-.428	-.474	-.539	-.612	-.699
.500	-.772	-.492	-.488	-.471	-.428	-.385	-.343	-.287	-.325	-.371	-.420	-.453	-.495	-.548	-.561
.600	-.653	-.405	-.439	-.438	-.409	-.383	-.358	-.317	-.349	-.380	-.413	-.431	-.453	-.489	-.448
.700	-.544	-.302	-.349	-.275	-.374	-.371	-.347	-.289	-.342	-.373	-.400	-.397	-.363	-.402	-.348
.800	a-.452	a-.225	a-.222	a-.262	a-.281	-.343	-.290	-.225	-.275	-.336	-.376	-.328	a-.248	a-.292	a-.265
.900	-.370	-.129	-.090	-.090	-.093	-.113	-.126	-.144	-.132	-.112	-.114	-.101	-.098	-.160	-.189
.950	-.321	-.069	.007	.024	.032	.015	.003	-.025	.024	.012	.015	-.020	.010	-.073	-.143
Lower surface															
.0375	.831	.773	.650	.533	.404	.197	-.035	-.262	-.144	.148	.294	.458	.614	.640	.791
.075	.584	.613	.571	.467	.337	.118	a-.037	-.244	-.196	-.114	.159	.290	.440	.476	.627
.150	.506	.439	.336	.246	.174	.049	-.062	-.209	-.119	.020	.099	a.210	.310	.325	.463
.250	.374	.322	.239	.168	.109	.017	-.062	-.164	-.101	.003	.053	.129	.216	.215	.343
.350	.285	.243	.179	.116	.074	.005	-.062	-.141	-.095	-.013	.027	.088	.160	.149	.259
.450	.201	.172	.127	.073	.040	-.022	-.077	-.134	-.099	-.032	0	.049	.109	.089	.183
.550	.132	.122	.089	.043	.020	-.030	-.073	-.116	-.095	-.036	-.016	.029	.074	.046	.127
.650	.062	.069	.054	.019	0	-.038	-.067	-.096	-.084	-.042	-.030	.008	.041	.003	.077
.750	.018	.055	.056	.030	.022	-.007	-.024	a-.058	a-.059	-.009	-.004	.018	.048	-.004	.050
.850	-.049	.026	.049	.034	.036	.021	.018	.016	-.013	a-.023	a-.020	a.035	a.040	a-.020	a-.008
.925	-.106	.009	.058	.057	.068	.066	.073	.084	.073	.069	.061	.058	.061	-.018	a-.026
.975	-.073	.074	.144	.139	.160	.170	.130	a.139	a.146	a.139	a.146	.120	a.142	a.043	a.010
a1.000	.021	.127	.123	.273	.302	.221	.205	.215	.235	.226	.236	.252	.263	.132	.133

a Faired value.

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) - Continued

(g) N = 1350 rpm; $\beta_{0.75R}$ = 44.39°.

J	1.524	1.648	1.757	1.859	1.952	2.060	2.172	2.280	2.399	2.500	2.452	2.350	2.231	2.130	2.017	1.876	1.814	1.696	1.572
M_x	.603	.616	.628	.642	.654	.666	.683	.698	.716	.733	.722	.706	.689	.675	.657	.640	.637	.620	.602
α_x'	11.34	9.32	7.60	6.08	4.74	3.23	1.73	.35	-1.09	-2.29	-1.72	-.52	.99	2.29	3.82	5.84	6.74	8.56	10.55
$\Delta\beta$	.30	.30	.29	.28	.27	.26	.25	.23	.21	.19	.20	.22	.24	.25	.27	.27	.28	.29	.30
α_1	2.76	2.48	2.32	2.15	1.95	1.68	1.31	.89	.49	.22	.33	.60	.98	1.39	1.76	2.13	2.24	2.42	2.84
c_l	.9232	.8312	.7846	.7270	.6647	.5724	.4459	.3050	.1680	.0763	.1137	.2060	.3348	.4745	.6030	.7210	.7590	.8193	.9528
c_m	-.0400	-.0546	-.0484	-.0525	-.0446	-.0492	-.0550	-.0636	-.0711	-.0687	-.0700	-.0688	-.0645	-.0550	-.0477	-.0459	-.0482	-.0372	-.0590
c_c	.0008	-.0085	-.0139	-.0128	-.0348	-.0181	-.0061	.0047	.0111	.0164	.0139	.0135	-.0006	-.0072	-.0162	-.0354	-.0198	-.0217	-.0204

c/b									Pressure coefficient, P										
Upper surface																			
0.000	1.093	1.098	1.102	1.107	1.112	1.116	1.122	1.128	1.135	1.142	1.138	1.132	1.125	1.120	1.112	1.106	1.105	1.099	1.093
a.025	-.098	-.128	-.457	-.395	-1.449	-1.240	-.749	-.136	.230	.370	.405	.476	-.110	-.790	-1.221	-1.406	-.913	-1.018	-1.153
.050	-1.105	-1.205	-1.332	-1.270	-1.211	-1.141	-.684	a-.222	.012	a.169	a.095	a.005	a-.261	a-.755	a-1.157	-1.273	-1.302	-1.395	-1.485
.100	-1.286	-1.423	-1.467	-1.496	-.788	-.686	-.496	-.311	-.134	.002	-.070	-.208	-.367	-.549	-.743	-.934	-1.374	-1.503	-1.594
a.200	-1.191	-1.193	-.964	-.839	-.699	-.605	-.500	-.393	-.282	-.172	-.221	-.320	-.427	-.522	-.655	-.769	-.867	-1.201	-1.288
.300	-1.031	-.935	-.746	-.668	-.640	-.577	-.496	-.412	-.323	-.253	-.290	-.360	-.443	-.524	-.604	-.668	-.667	-.843	-1.010
.400	-.867	-.793	-.612	-.585	-.562	-.519	-.462	-.406	-.338	-.286	-.313	-.369	-.428	-.484	-.536	-.586	-.585	-.643	-.898
.500	-.710	-.558	-.514	-.527	-.516	-.489	-.452	-.412	-.368	-.331	-.350	-.386	-.431	-.469	-.501	-.532	-.524	-.509	-.663
.600	-.580	-.437	-.431	-.474	-.474	-.462	-.441	-.421	-.395	-.376	-.385	-.410	-.436	-.458	-.468	-.484	-.470	-.406	-.585
.700	-.469	-.333	-.334	-.388	-.397	-.398	-.391	-.386	-.375	-.367	-.371	-.382	-.395	-.403	-.398	-.401	-.381	-.309	-.410
.800	-.387	-.257	-.222	-.263	-.274	-.287	-.292	-.299	-.303	-.309	-.305	-.305	-.307	-.301	-.282	-.275	-.256	-.218	-.329
.900	-.316	-.189	-.080	-.065	-.065	-.071	-.081	-.093	-.108	-.113	-.108	-.103	-.098	-.089	-.071	-.074	-.061	-.131	-.260
.950	-.273	-.153	-.016	.037	.040	.047	.047	.040	.033	.024	.028	.034	.034	.037	.040	.030	.038	-.089	-.223
Lower surface																			
.0375	.826	.792	.753	.660	.558	.422	.240	.025	-.295	-.334	-.426	-.143	.078	.291	.485	.633	.701	.768	.809
.075	.665	.624	.592	.506	.415	.307	.173	.016	-.148	-.307	-.228	-.082	.055	.207	.355	.478	.541	.601	.641
.150	.500	.463	.436	.362	.287	.206	.110	.004	-.115	-.227	-.166	-.062	.028	.131	.241	.338	.390	.439	.476
.250	.366	.335	.318	.257	.194	.130	.056	-.022	-.109	-.191	-.147	-.071	-.006	.070	.158	.236	.261	.318	.347
.350	.276	.256	.248	.201	.141	.089	.028	-.034	-.105	-.166	-.135	-.075	-.023	.039	.110	.174	.215	.240	.262
.450	.195	.181	.179	.137	.091	.048	.001	-.050	-.105	-.152	-.128	-.082	-.041	.008	.068	.119	.155	.173	.184
.550	.128	.121	.130	.096	.059	.024	-.014	-.055	-.098	-.132	-.116	-.079	-.047	-.008	.040	.083	.113	.119	.122
.650	.060	.064	.064	.084	.062	.027	.004	-.027	-.056	-.113	-.099	-.075	-.054	-.023	.015	.048	.075	.066	.099
.750	.022	.039	.074	.063	.038	.021	.004	-.016	-.037	-.051	-.044	-.030	-.018	.001	.027	.051	.074	.050	.028
.850	-.039	-.006	.054	.057	.040	.034	.025	.019	.013	.009	.010	.014	.015	.022	.034	.048	.063	.014	-.028
.925	-.091	-.039	.050	.067	.060	.066	.068	.072	.078	.080	.078	.075	.064	.060	.060	.061	.072	-.005	-.070
.975	-.078	.005	.088	.125	.128	.149	.160	.174	.186	.199	.189	.179	.165	.151	.137	.124	.125	.050	-.041
a1.000	.010	.120	.132	.223	.212	.255	.277	.271	.281	.330	.290	.301	.261	.263	.253	.243	.233	.199	.046

a Faired value.

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) - Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.39°.

	J	1.969	2.067	2.148	2.242	2.350	2.441	2.414	2.311	2.186	2.096	1.992
	M_x	.784	.797	.810	.830	.846	.872	.855	.838	.813	.796	.784
	a_x'	4.48	3.14	2.05	.84	-.52	-1.58	-1.28	-.02	1.56	2.74	4.18
	$\Delta\beta$	.41	.38	.36	.33	.31	.27	.28	.31	.35	.37	.40
	a_1	2.33	1.90	1.55	1.06	.59	-.02	.24	.77	1.39	1.78	2.20
	c_n	.7953	.6517	.5294	.3644	.2034	-.0055	.0828	.2656	.4744	.6075	.7535
	c_m	-.0607	-.0586	-.0673	-.0764	-.0778	-.0848	-.0847	-.0789	-.0695	-.0615	-.0587
	t_c	-.0359	-.0284	-.0142	-.0017	.0025	.0075	.0075	.0042	-.0073	-.0198	-.0283
	c/b	Pressure coefficient, P										
Upper surface	0.000	1.163	1.169	1.175	1.184	1.191	1.204	1.196	1.187	1.176	1.169	1.163
	.025	-.961	-.880	-.437	-.091	.167	.367	.362	.082	-.270	-.631	-.880
	.050	-1.043	-.758	-.443	-.164	.050	.231	.163	-.029	-.313	-.646	-.962
	.100	-.967	-.645	-.469	-.276	-.104	.054	-.010	-.173	-.391	-.564	-.901
	a.200	-.991	-.721	-.602	-.443	-.305	-.168	-.235	-.366	-.536	-.678	-.901
	.300	-1.034	-.847	-.715	-.537	-.410	-.271	-.330	-.458	-.638	-.792	-.950
	.400	-1.028	-.876	-.734	-.576	-.445	-.322	-.369	-.492	-.670	-.818	-.961
	.500	-.943	-.871	-.764	-.614	-.503	-.411	-.450	-.542	-.684	-.828	-.882
	.600	-.416	-.521	-.775	-.684	-.601	-.505	-.552	-.630	-.754	-.538	-.424
	.700	-.347	-.348	-.364	-.665	-.679	-.611	-.649	-.708	-.399	-.370	-.359
	.800	-.228	-.227	-.233	-.219	-.264	-.366	-.340	-.230	-.236	-.241	-.243
	.900	-.029	-.018	-.022	-.015	-.014	.045	-.032	-.018	-.021	-.023	-.028
	.950	.081	.081	.075	.080	.074	.018	.042	.079	.078	.079	.081
Lower surface	.0375	.507	.386	.242	.011	-.341	-.805	-.716	-.159	.158	.345	.480
	.075	.389	.290	.178	.020	-.135	-.699	-.485	-.084	.119	.256	.364
	.150	.278	.200	.117	.005	-.121	-.480	-.174	-.069	.073	.174	.257
	.250	.188	.125	.056	-.030	-.133	-.225	-.190	-.078	.031	.111	.179
	.350	.138	.082	.022	-.053	-.138	-.225	-.196	-.103	.004	.065	.124
	.450	.090	.040	-.013	-.076	-.148	-.227	-.193	-.117	-.034	.025	.080
	.550	.055	.013	-.034	-.090	-.152	-.210	-.188	-.122	-.048	0	.049
	.650	.024	.012	-.053	-.098	-.147	-.191	-.175	-.123	-.067	.022	.019
	.750	.043	.013	-.019	-.050	-.083	-.111	-.103	-.069	-.028	.005	.037
	a.850	.061	.042	.020	.004	.006	-.039	-.020	-.005	.020	.040	.059
	.925	.091	.074	.057	.052	.045	.020	.033	.051	.060	.071	.088
	a.975	.192	.155	.122	.121	-.108	.080	.096	.114	.173	.151	.188
	a1.000	.475	.379	.272	.302	.221	.170	.200	.226	.352	.302	.374

aFaired value.

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) - Continued

(1) $M = 0.56$; $\beta_{0.75R} = 44.39°$.

	2.026	2.060	2.093	2.155	2.182	2.239	2.286	2.357	2.382	2.432	2.507
J											
M_x	.897	.885	.877	.857	.851	.839	.823	.820	.808	.800	.784
$\alpha_x{}'$	3.70	3.23	2.78	1.96	1.61	.87	.28	-.59	-.89	-1.49	-2.36
$\Delta\beta$	.45	.44	.42	.40	.38	.36	.33	.30	.29	.26	.22
α_1	1.58	1.56	1.49	1.39	1.28	1.13	.95	.65	.53	.35	.08
c_n	.5414	.5317	.5109	.4730	.4386	.3875	.3254	.2245	.1824	.1190	.0285
c_m	-.0748	-.0772	-.0765	-.0762	-.0753	-.0818	-.0771	-.0776	-.0799	-.0828	-.0840
c_c	.0126	.0124	.0120	.0084	.0083	.0026	.0033	.0014	.0033	.0018	.0015

c/b	Pressure coefficient, P										
Upper surface											
0.000	1.217	1.211	1.208	1.197	1.194	1.189	1.180	1.179	1.174	1.170	1.164
.025	-.352	-.360	-.330	-.277	-.203	-.122	-.043	.107	.179	.244	.328
.050	-.421	-.407	-.365	-.301	-.242	-.179	-.115	.009	.065	.119	.200
.100	-.399	-.387	-.360	-.346	-.320	-.286	-.247	-.145	-.098	-.055	.015
a.200	-.510	-.500	-.500	-.485	-.471	-.450	-.425	-.332	-.298	-.250	-.189
.300	-.631	-.646	-.642	-.627	-.597	-.559	-.524	-.429	-.386	-.345	-.286
.400	-.678	-.695	-.689	-.677	-.643	-.605	-.550	-.458	-.424	-.387	-.334
.500	-.722	-.740	-.747	-.730	-.682	-.635	-.598	-.523	-.490	-.454	-.397
.600	-.794	-.821	-.815	-.793	-.772	-.741	-.678	-.597	-.562	-.516	-.452
.700	-.444	-.470	-.529	-.659	-.730	-.759	-.631	-.506	-.454	-.447	-.430
.800	-.296	-.296	-.281	-.253	-.217	-.208	-.249	-.285	-.296	-.317	-.329
.900	-.271	-.270	-.245	-.174	-.104	-.038	-.037	-.054	-.057	-.082	-.107
.950	-.228	-.256	-.234	-.169	-.084	-.005	.039	.062	.068	.047	.023
Lower surface											
.0375	.363	.326	.282	.196	.138	.037	-.063	-.267	-.405	-.657	-.988
.075	.293	.263	.227	.159	.117	.045	-.025	-.131	-.170	-.211	-.515
.150	.208	.181	.151	.099	.066	.012	-.038	-.108	-.133	-.184	-.232
.250	.139	.114	.089	.047	.021	-.018	-.056	-.103	-.122	-.163	-.206
.350	.071	.048	.026	-.008	-.027	-.057	-.084	-.115	-.127	-.158	-.196
.450	.017	-.005	-.024	-.050	-.063	-.083	-.101	-.122	-.127	-.150	-.177
.550	-.033	-.051	-.069	-.084	-.090	-.099	-.108	-.119	-.121	-.137	-.156
.650	-.087	-.105	-.116	-.118	-.114	-.111	-.111	-.110	-.108	-.120	-.136
.750	-.072	-.104	-.117	-.118	-.103	-.094	-.083	-.063	-.057	-.066	-.083
.850	-.113	-.129	-.128	-.101	-.074	-.049	-.034	-.015	-.008	-.020	-.029
.925	-.130	-.135	-.122	-.062	-.023	.022	.047	.071	.086	.078	.078
.975	a-.097	a-.095	a-.071	a-.025	a.051	a.120	a.158	a.191	.219	.210	.212
a1.000	.020	.005	.017	.060	.150	.290	.290	.405	.335	.340	.380

a Faired value.

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) - Continued

(j) M = 0.60; $\beta_{0.75R}$ = 44.39°.

J	2.033	2.066	2.092	2.130	2.155	2.180	2.226	2.285	2.313	2.354	2.386	2.429
M_x	.955	.946	.938	.936	.926	.920	.909	.893	.883	.882	.876	.868
a_x'	3.60	3.15	2.80	2.29	1.97	1.63	1.04	.29	-.05	-.55	-.94	-1.56
$\Delta\beta$	.48	.47	.45	.43	.42	.41	.38	.35	.34	.32	.30	.28
α_1	1.53	1.44	1.35	1.19	1.13	1.07	.91	.76	.70	.55	.49	.38
c_n	.5238	.4919	.4620	.4041	.3853	.3645	.3114	.2607	.2423	.1895	.1683	.1302
c_m	-.1142	-.1078	-.1006	-.0853	-.0871	-.0820	-.0745	-.0733	-.0758	-.0702	-.0789	-.0744
c_c	.0312	.0326	.0334	.0382	.0323	.0292	.0364	.0310	.0332	.0349	.0292	.0219
c/b	Pressure coefficient, P											
Upper surface												
0.000	1.249	1.244	1.239	1.238	1.232	1.230	1.223	1.215	1.210	1.210	1.207	1.203
a.025	-.110	-.015	-.048	.310	.085	.148	.550	.579	.663	.600	.700	.675
.050	-.203	-.160	-.147	-.084	-.061	-.040	.030	.088	.107	.156	.184	.221
.100	a-.298	-.284	-.185	-.280	-.205	-.213	-.232	-.257	-.246	-.169	-.144	-.110
a.200	-.414	a-.420	-.292	a-.381	-.373	-.357	-.342	-.323	-.315	-.277	-.258	-.230
.300	-.490	-.479	-.479	-.451	-.443	-.438	-.403	-.371	-.364	-.337	-.317	-.284
.400	-.539	-.521	-.537	-.514	-.502	-.496	-.461	-.429	-.422	-.382	-.364	-.336
.500	-.589	-.590	-.599	-.585	-.571	-.554	-.516	-.492	-.479	-.448	-.442	-.427
.600	-.668	-.670	-.673	-.629	-.622	-.624	-.621	-.588	-.572	-.549	-.526	-.510
.700	-.741	-.724	-.729	-.729	-.734	-.735	-.687	-.677	-.664	-.638	-.632	-.626
a.800	-.763	-.738	-.729	-.758	-.778	-.720	-.658	-.709	-.720	-.713	-.686	-.655
.900	-.381	-.378	-.362	-.329	-.280	-.288	-.184	-.133	-.109	-.088	-.059	-.024
.950	a-.356	-.359	-.348	-.315	-.270	-.238	-.171	-.110	-.075	-.038	-.002	.049
Lower surface												
.0375	.313	.274	.233	.155	.095	a.313	a.520	a.365	a.368	a.083	-.008	a-.093
.075	.263	.233	.198	.154	.109	.087	.054	.009	-.020	a-.118	-.158	a.125
.150	.197	.171	.141	.095	.058	.036	-.029	-.096	-.131	-.158	-.185	a.165
.250	.131	.113	.086	.047	.016	0	-.046	-.108	-.139	-.177	-.190	-.200
.350	.066	.050	.024	-.011	-.037	-.051	-.088	-.138	-.161	-.193	-.204	-.217
.450	.008	-.009	-.031	-.063	-.086	-.098	-.131	-.165	-.181	-.203	-.208	-.213
.550	-.041	-.057	-.078	-.106	-.128	-.137	-.163	-.190	-.200	-.211	-.205	-.199
.650	a-.088	-.101	-.143	-.185	a-.172	a-.174	a-.187	a-.225	a-.196	-.218	-.198	a-.142
.750	-.126	-.146	-.165	-.198	-.204	-.201	-.193	-.179	-.162	-.149	-.126	-.106
.850	-.171	-.186	-.204	-.224	-.222	-.211	-.175	-.132	-.112	-.088	-.065	-.041
.925	-.154	-.171	-.185	-.198	-.188	-.175	-.135	-.085	-.059	-.030	-.001	.031
a.975	-.126	-.118	-.144	-.093	-.151	-.132	-.080	-.021	.006	-.046	.106	.132
a1.000	-.085	-.063	-.100	.010	-.103	-.040	0	.048	.075	.085	.223	.260

aFaired value

NACA

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.95)(06.95) PROPELLER BLADE SECTION (x = 0.80) - Concluded

(k) M = 0.65; $\beta_{0.75R}$ = 44.39°.

	J	2.037	2.052	2.095	2.129	2.167	2.194	2.226	2.245	2.305	2.337	2.362
	M_x	1.093	1.088	1.067	1.056	1.046	1.036	1.023	1.018	1.001	.994	.984
	$\alpha_x{}'$	3.55	3.34	2.76	2.29	1.81	1.46	1.04	.81	.04	-.36	-.65
	$\Delta\beta$	.56	.55	.53	.51	.48	.47	.45	.43	.40	.38	.36
	α_1	1.11	1.11	1.05	1.00	.84	.76	.64	.55	.33	.20	.05
	c_n	.3800	.3787	.3582	.3428	.2848	.2590	.2171	.1894	.1153	.0670	.0161
	c_m	-.1036	-.1138	-.1192	-.1188	-.1170	-.1147	-.1108	-.1084	-.1030	-.0964	-.0874
	c_c	.0437	.0442	.0457	.0476	.0432	.0432	.0435	.0433	.0444	.0449	.0425
	c/b						Pressure coefficient, P					
Upper surface	0.000	1.334	1.331	1.318	1.310	1.304	1.298	1.288	1.284	1.275	1.272	1.265
	.025	.229	.167	.158	.179	.232	.252	.289	.314	.343	.371	.386
	.050	.056	.057	.070	.099	.144	.159	.189	.209	.231	.254	.265
	.100	.003	.003	.001	.011	.035	.041	.058	.070	.081	.099	.106
	a.200	-.169	-.145	-.160	-.149	-.138	-.131	-.129	-.141	-.121	-.108	-.125
	.300	-.268	-.274	-.284	-.276	-.251	-.247	-.235	-.229	-.223	-.208	-.209
	.400	-.318	-.328	-.341	-.340	-.313	-.307	-.294	-.285	-.284	-.270	-.270
	.500	-.371	-.383	-.397	-.393	-.376	-.376	-.358	-.346	-.343	-.333	-.335
	.600	-.434	-.449	-.476	-.475	-.440	-.431	-.422	-.421	-.439	-.438	-.443
	.700	-.503	-.519	-.545	-.537	-.519	-.527	-.529	-.529	-.527	-.513	-.516
	.800	-.599	-.618	-.635	-.644	-.642	-.650	-.642	-.637	-.652	-.650	-.655
	.900	-.667	-.695	-.731	-.741	-.732	-.741	-.744	-.741	-.756	-.754	-.764
	.950	-.439	-.585	-.715	-.751	-.770	-.789	-.797	-.800	-.824	-.819	-.773
Lower surface	.0375	.301	.284	.217	.154	.069	.013	-.110	-.184	-.313	-.372	-.434
	.075	.272	.264	.207	.161	.105	.074	.004	-.063	-.217	-.288	-.353
	.150	.219	.206	.157	.121	.081	.055	.019	-.007	-.132	-.200	-.266
	.250	.155	.145	.098	.067	.033	.011	-.025	-.045	-.130	-.171	-.231
	.350	.094	.086	.041	.013	-.017	-.038	-.074	-.096	-.183	-.231	-.287
	.450	.048	.038	-.004	-.028	-.051	-.071	-.103	-.123	-.181	-.225	-.287
	.550	.003	-.003	-.043	-.065	-.084	-.105	-.136	-.159	-.203	-.225	-.276
	.650	-.064	-.070	-.107	-.128	-.143	-.164	-.192	-.211	-.267	-.284	-.313
	.750	-.071	-.089	-.133	-.145	-.173	-.192	-.215	-.223	-.278	-.299	-.327
	.850	-.156	-.161	-.198	-.216	-.226	-.245	-.270	-.284	-.331	-.348	-.373
	.925	-.164	-.171	-.207	-.221	-.231	-.252	-.275	-.290	-.337	-.355	-.379
	a.975	-.158	-.162	-.183	-.200	-.203	-.230	-.245	-.259	-.303	-.335	-.355
	a1.000	0	-.050	-.135	-.145	-.135	-.170	-.180	-.180	-.235	-.270	-.285

a Faired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.66°.

J	0.652	0.810	0.845	0.980	1.070	1.151	1.280	1.369	1.486	1.432	1.333	1.218	1.119	1.029	0.933	0.840	0.760
M_x	.479	.470	.471	.482	.490	.509	.508	.528	.528	.520	.513	.509	.496	.493	.484	.454	.474
$\alpha_x{}'$	12.42	9.27	8.58	5.99	4.31	2.82	.53	-1.00	-2.96	-2.06	-.39	1.62	3.40	5.07	6.88	8.68	10.25
$\Delta\beta$	.24	.24	.24	.23	.22	.21	.19	.18	.17	.18	.19	.20	.21	.22	.23	.24	.24
α_1	2.68	2.78	2.43	2.12	1.88	1.52	1.06	.61	.05	.25	.66	1.16	1.60	1.96	2.30	2.79	2.93
c_n	.7364	.8001	.7003	.6244	.5596	.4535	.3210	.1860	.0155	.0772	.2006	.3468	.4773	.5799	.6721	.8083	.8336
c_m	-.0689	-.0376	-.0287	-.0424	-.0502	-.0439	-.0449	-.0510	-.0624	-.0642	-.0625	-.0593	-.0606	-.0549	-.0404	-.0379	-.0441
c_c	-.0070	-.0250	-.0250	-.0215	-.0200	-.0147	-.0133	-.0139	.0075	.0078	.0027	-.0037	-.0101	-.0175	-.0251	-.0304	-.0287
c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.059	1.057	1.057	1.060	1.061	1.066	1.066	1.071	1.071	1.069	1.067	1.066	1.063	1.062	1.060	1.053	1.058
.025	-.660	-.878	-.818	-1.039	-1.024	-.961	-.937	-.876	.343	.331	.110	-.152	-.439	-.858	-.969	-1.097	-1.022
.050	-.995	-1.376	-1.296	-1.272	-1.267	-1.196	-.774	-.845	.002	-.004	-.020	-.049	-.375	-.908	-1.220	-1.394	-1.306
.100	-.877	-1.363	-1.316	-.919	-.710	-.526	-.332	-.152	.011	-.066	-.226	-.409	-.599	-.731	-1.256	-1.467	-1.366
a.200	-.770	-1.018	-.855	-.643	-.551	-.414	-.276	-.151	-.072	-.130	-.292	-.411	-.543	-.579	-.711	-1.024	-1.077
.300	-.718	-.790	-.633	-.527	-.496	-.406	-.318	-.228	-.158	-.194	-.272	-.352	-.456	-.510	-.540	-.798	-.884
.400	-.652	-.645	-.516	-.488	-.467	-.402	-.341	-.273	-.226	-.253	-.304	-.366	-.446	-.486	-.490	-.600	-.706
.500	-.569	-.507	-.420	-.434	-.423	-.373	-.332	-.278	-.249	-.269	-.304	-.348	-.414	-.432	-.429	-.489	-.543
.600	-.484	-.401	-.345	-.387	-.391	-.358	-.332	-.296	-.280	-.294	-.319	-.342	-.389	-.393	-.378	-.388	-.405
.700	-.416	-.313	-.271	-.318	-.330	-.309	-.295	-.269	-.267	-.275	-.286	-.302	-.341	-.332	-.308	-.308	-.316
.800	-.344	-.239	-.203	-.248	-.273	-.264	-.271	-.260	-.269	-.275	-.272	-.271	-.292	-.268	-.237	-.232	-.240
.900	-.285	-.168	-.113	-.106	-.116	-.116	-.132	-.134	-.152	-.151	-.139	-.124	-.136	-.113	-.105	-.143	-.174
.950	-.247	-.130	-.063	-.015	-.004	-.001	-.010	-.017	-.041	-.036	-.020	-.006	-.016	-.012	-.018	-.083	-.127
Lower surface																	
.0375	.707	.758	.686	.595	.487	.325	.074	-.179	-.520	-.362	-.086	.193	.386	.545	.641	.776	.741
.075	.556	.585	.523	.439	.341	.227	.046	-.125	-.348	-.253	-.059	.132	.267	.396	.479	.602	.584
.150	.427	.448	.392	.322	.246	.163	.038	-.080	-.224	-.165	-.067	.093	.186	.285	.356	.450	.443
.250	.306	.315	.276	.214	.158	.097	.004	-.082	-.188	-.142	-.050	.047	.113	.191	.247	.320	.312
.350	.232	.235	.208	.160	.112	.062	-.010	-.071	-.152	-.116	-.050	.027	.079	.143	.185	.235	.242
.450	.155	.161	.136	.101	.066	.032	-.024	-.090	-.145	-.119	-.050	.008	.050	.096	.124	.165	.173
.550	.113	.124	.110	.083	.049	.017	-.026	-.062	-.113	-.087	-.043	-.001	.030	.071	.101	.122	.126
.650	.047	.060	.055	.036	.017	-.001	-.046	-.073	-.113	-.094	a-.049	-.013	.006	.037	.053	.067	.063
.750	.008	.034	.035	.036	.025	.013	-.019	-.031	-.059	-.050	-.032	.004	.010	.039	.041	.038	.032
.850	-.041	-.003	.011	.032	.025	.017	-.001	.001	-.009	-.004	-.002	.013	.020	.037	.030	.010	-.002
.925	a-.064	a-.037	a.010	a.075	a.109	a.061	a.061	a.060	a.060	a.073	a.050	.113	.093	.108	.095	a.019	a.016
.975	a-.055	a-.005	a.039	a.176	a.242	a.138	a.207	a.159	a.188	a.198	a.210	a.242	.255	a.227	a.209	a.118	a.094
a1.000	-.015	.082	.253	.270	.340	.266	.445	.332	.330	.310	.494	.356	.326	.312	.303	.216	.198

aFaired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(b) $N = 1350$ rpm; $\beta_{0.75R} = 29.66°$.

J	0.704	0.777	0.859	0.938	1.005	1.096	1.174	1.271	1.371	1.465	1.404	1.329	1.243	1.144	1.077	0.973	0.910	0.836	0.738
M_x	.536	.564	.572	.573	.581	.598	.606	.610	.624	.636	.620	.615	.605	.590	.583	.585	.561	.550	.567
α_x'	11.37	9.92	8.31	6.79	5.52	3.82	2.41	.69	-1.03	-2.61	-1.59	-.34	1.18	2.95	4.17	6.12	7.32	8.76	10.69
$\Delta\beta$	.33	.34	.33	.33	.32	.30	.29	.27	.25	.23	.25	.26	.28	.29	.30	.32	.33	.34	.34
α_1	2.67	2.83	2.53	2.35	2.07	1.79	1.44	1.14	.56	.13	.35	.65	1.02	1.64	1.90	2.23	2.46	2.74	2.82
c_n	.7480	.8073	.7320	.6896	.6111	.5339	.4889	.3450	.1692	.0408	.1058	.1957	.3063	.4895	.5633	.6560	.7195	.7929	.7980
b_m	-.0688	-.0471	-.0225	-.0314	-.0451	-.0478	-.0478	-.0603	-.0586	-.0672	-.0631	-.0677	-.0612	-.0449	-.0550	-.0474	-.0375	-.0411	-.0472
t_c	-.0021	-.0213	-.0276	-.0244	-.0180	-.0177	-.0160	-.0130	-.0028	.0002	.0032	.0048	.0083	.0199	.0114	-.0219	-.0291	-.0305	-.0268

c/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.073	1.082	1.084	1.084	1.087	1.092	1.095	1.096	1.101	1.105	1.099	1.098	1.094	1.090	1.087	1.088	1.081	1.077	1.082
.025	-.595	-.902	-1.032	-.980	-1.053	a-.622	a-.211	a.066	a.108	a.232	a.289	a-.934	a-.597			-.975	-1.018	-1.063	-1.016
.050	-.913	-1.412	-1.573	-1.590	-1.534	a-1.099	-.868	-.476	-.215	.003	-.011	-.019	-.035	a-.806	-.738	-1.232	-1.320	-1.383	-1.224
.100	-.961	a-1.474	-1.453	-1.328	-.846	-.680	-.641	-.345	-.162	-.004	-.108	-.227	-.382	-.603	-.746	-1.051	-1.328	-1.524	-1.181
.200	-.834	-.982	-.921	-.793	-.624	-.542	-.551	-.334	-.189	-.070	-.191	-.275	-.370	-.479	-.639	-.696	-.844	-.963	-.973
.300	-.740	-.807	-.686	-.597	-.551	-.496	-.552	-.339	-.251	-.171	-.234	-.285	-.364	-.468	-.539	-.565	-.627	-.751	-.820
.400	-.665	-.678	-.553	-.527	-.511	-.473	-.559	-.366	-.303	-.242	-.294	-.330	-.390	-.458	-.512	-.520	-.540	-.590	-.683
.500	-.576	-.544	-.449	-.454	-.458	-.429	-.531	-.352	-.304	-.259	-.306	-.330	-.375	-.425	-.462	-.459	-.462	-.474	-.547
.600	-.480	-.421	-.362	-.387	-.405	-.394	-.514	-.350	-.320	-.288	-.326	-.341	-.371	-.403	-.427	-.407	-.394	-.424	-.419
.700	-.422	-.338	-.286	-.315	-.340	-.339	-.468	-.313	-.294	-.273	-.306	-.308	-.334	-.347	-.360	-.338	-.311	-.298	-.343
.800	-.354	-.262	-.211	-.231	-.263	-.274	-.424	-.280	-.277	-.271	-.297	-.290	-.298	-.294	-.292	-.254	-.230	-.228	-.273
.900	-.297	-.195	-.116	-.096	-.102	-.105	-.257	-.124	-.132	-.140	-.156	-.141	-.140	-.120	-.119	-.102	-.101	-.146	-.214
.950	-.247	-.060	.096	.090	.016	.018	-.189	.006	-.007	-.013	-.026	-.012	-.010	.004	.001	.004	-.023	-.092	-.056
Lower surface																			
.0375	.711	a.702	a.660	.599	.555	.449	.134	.086	-.194	-.462	-.326	-.109	.111	.373	.507	.617	.695	.735	.666
.075	.573	.584	.536	.496	.413	.317	.043	.053	-.136	-.314	-.230	-.077	.069	.254	.365	.462	.528	.590	.578
.150	.432	.435	.401	.370	.296	.225	-.018	.032	-.089	-.208	-.158	-.055	.038	.175	.244	.317	.325	.432	.438
.250	.309	.307	.278	.249	.193	.133	-.080	-.003	-.091	-.171	-.146	-.066	.001	.097	.154	.222	.271	.307	.316
.350	.234	.235	.212	.195	.150	.104	-.097	-.005	-.074	-.135	-.116	-.058	-.006	.073	.120	.173	.206	.232	.243
.450	.140	a.149	.125	.115	.077	.044	-.142	-.037	-.087	-.130	-.115	-.068	-.033	.026	.062	.104	.129	.144	.157
.550	.108	.117	.110	.103	.076	.043	-.134	-.022	-.064	-.100	-.092	-.055	-.026	.024	.057	.090	.107	.120	.122
.650	.026	.041	a.045	.042	.027	.002	-.167	.025	-.072	-.094	-.099	-.077	-.054	-.016	.006	.037	.048	.047	.043
.750	-.009	.015	a.008	.035	.027	.013	-.148	-.019	-.034	-.047	-.056	-.041	-.028	0	.012	.033	.035	.020	.012
.850	-.066	-.028	-.001	.018	.025	.021	-.125	.008	.005	.004	-.011	0	.003	.013	.017	.028	.022	-.008	-.035
.925	a-.067	.062	.057	.061	.071	.083	-.048	.109	.072	.100	.058	.089	a.071	.051	.067	.121	.107	.078	.035
.975	a-.013	a.201	.183	a.196	a.195	a.210	a.054	.224	.226	.238	a.151	a.242	a.173	a.125	a.201	.247	a.209	a.243	.183
a1.000	.076	.374	.454	.365	.414	.411	.173	.374	.453	.450	.271	.504	.456	.254	.412	.416	.377	.423	.529

a Faired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–(2.82)(06.43) PROPELLER BLADE SECTION $(x = 0.85)$ — Continued

(c) $N = 1600$ rpm; $\beta_{0.75R} = 29.66°$.

J	0.828	0.904	0.975	1.039	1.103	1.194	1.259	1.354	1.418	1.386	1.300	1.220	1.157	1.071	1.013	0.941	0.873
M_x	.681	.700	.692	.698	.711	.716	.728	.739	.745	.746	.734	.714	.702	.710	.681	.689	.680
a_x'	8.91	7.44	6.08	4.88	3.70	2.04	.90	−.75	−1.83	−1.29	.18	1.59	2.71	4.28	5.37	6.73	8.04
$\Delta\beta$	.43	.43	.42	.42	.41	.40	.39	.37	.36	.37	.38	.39	.40	.41	.42	.43	.43
a_1	2.65	2.50	2.37	2.24	1.85	1.52	1.16	.69	.24	.39	.80	1.32	1.66	1.96	2.36	2.47	2.56
c_n	.7628	.7289	.6986	.6665	.5496	.4555	.3499	.2108	.0719	.1178	.2418	.3961	.4938	.5825	.7013	.7253	.7431
c_m	−.0210	−.0244	−.0328	−.0377	−.0474	−.0489	−.0515	−.0598	−.0696	−.0685	−.0629	−.0585	−.0520	−.0467	−.0419	−.0346	−.0238
c_c	−.0416	−.0393	−.0352	−.0240	−.0201	−.0107	−.0163	−.0100	.0077	.0070	.0039	−.0027	−.0114	−.0178	−.0253	−.0289	−.0359

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.122	1.129	1.126	1.128	1.133	1.135	1.140	1.145	1.147	1.148	1.143	1.135	1.130	1.133	1.122	1.125	1.121
.025	−1.061	−1.018	−1.050	−1.012	−.971	−.966	−.917	a−.423	.392	.333	.128	−.157	−.485	−.826	−.993	−1.040	−1.083
.050	−1.775	−1.711	−1.770	−1.721	−1.657	−1.260	−.565	−.269	a.107	a.070	−.113	a−.516	a−.689	−1.240	−1.580	−1.649	−1.696
.100	−1.892	−1.807	−1.769	−1.518	−.715	−.546	−.372	−.187	−.649	−.108	−.279	−.496	−.647	a−.815	−1.628	−1.755	−1.829
a.200	−.861	−.805	−.557	−.700	−.577	−.467	−.338	−.244	−.159	−.235	−.349	−.447	−.560	−.617	−.719	−.679	−.702
.300	−.590	−.472	−.491	−.549	−.537	−.477	−.398	−.309	−.233	−.263	−.352	−.455	−.527	−.563	−.545	−.481	−.512
.400	−.540	−.462	−.511	−.536	−.515	−.484	−.428	−.365	−.307	−.328	−.393	−.465	−.514	−.538	−.551	−.499	−.498
.500	−.457	−.431	−.477	−.487	−.469	−.449	−.413	−.369	−.328	−.345	−.390	−.440	−.474	−.487	−.504	−.472	−.452
.600	−.375	−.396	−.443	−.445	−.433	−.433	−.414	−.387	−.362	−.372	−.398	−.431	−.454	−.452	−.469	−.445	−.407
.700	−.291	−.321	−.361	−.368	−.362	−.370	−.358	−.346	−.331	−.337	−.352	−.369	−.381	−.374	−.381	−.358	−.315
.800	−.216	−.249	−.281	−.281	−.281	−.301	−.309	−.307	−.307	−.308	−.307	−.309	−.307	−.292	−.295	−.282	−.242
.900	−.126	−.093	−.099	−.086	−.086	−.102	−.115	−.120	−.127	−.124	−.118	−.111	−.101	−.096	−.096	−.101	−.093
.950	.122	.169	.125	.068	.042	.031	.019	.017	.012	.013	.017	.024	.029	.025	.044	.049	.058
Lower surface																	
.0375	.586	.561	.561	.520	.414	.264	.077	−.187	−.378	−.300	−.039	.216	.349	.474	.595	.635	.691
.075	.540	.493	.466	.396	.300	.178	.049	−.137	−.283	−.219	−.032	.145	.243	.345	.447	.495	.548
.150	.418	.380	.351	.287	.204	.119	.028	−.096	−.194	−.155	−.035	.087	.160	.241	.329	.371	.414
.250	.289	.262	.239	.189	.122	.053	−.012	−.101	−.166	−.137	−.053	.036	.090	.149	.217	.253	.287
.350	.223	.210	.186	.147	.093	.036	−.019	−.086	−.134	−.113	−.049	.021	.063	.114	.171	.201	.228
.450	.141	.134	.115	.081	.038	−.008	−.048	−.096	−.127	−.111	−.065	−.014	.016	.061	.105	.130	.151
a.550	.085	.084	.061	.061	.034	.002	−.031	−.074	−.101	−.123	−.113	−.075	−.041	−.013	.019	.062	.103
.650	.047	.061	.043	.021	−.009	−.037	−.064	−.090	−.123	−.100	−.074	−.045	−.028	.003	.037	.052	.060
.750	.027	.054	.043	.028	.002	−.017	−.033	−.048	−.055	−.054	−.041	−.020	−.010	.010	.034	.049	.044
.850	.002	.048	.043	.032	.013	.006	−.003	−.007	−.002	−.005	−.005	.007	.008	.017	.038	.047	.033
.925	.100	.095	.093	.091	.078	.077	.070	.078	.084	.084	.056	.056	.052	.045	.048	.049	.046
a.975	.289	.247	.219	.189	.216	.183	.162	.209	.173	.152	.139	.127	.139	.147	.129	.136	.143
a1.000	.521	.598	.510	.372	.431	.285	.253	.352	.235	.211	.222	.234	.240	.309	.280	.272	.296

a Faired value.

NACA

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.66°.

	c/b											
	J	0.995	1.088	1.168	1.224	1.285	1.363	1.441	1.393	1.324	1.243	1.130
	M_x	.875	.890	.884	.905	.913	.926	.929	.924	.909	.906	.887
	α_x'	5.70	3.97	2.52	1.52	.44	-.90	-2.21	-1.41	.08	1.18	3.20
	$\Delta\theta$	.67	.65	.61	.59	.56	.53	.49	.51	.54	.58	.63
	α_i	2.70	2.06	1.61	1.14	.65	.13	-.43	-.12	.50	.94	1.71
	c_n	.7998	.6124	.4806	.3402	.1961	.0408	-.1320	-.0363	.1509	.2829	.5125
	c_m	-.1068	-.0832	-.0858	-.0713	-.0691	-.0734	-.0506	-.0646	-.0726	-.0667	-.0778
	c_0	.0032	.0084	.0177	.0191	.0187	.0195	.0180	.0190	.0184	.0191	.0118
	c/b	Pressure coefficient, P										
Upper surface	0.000	1.206	1.214	1.211	1.222	1.225	1.233	1.234	1.232	1.224	1.222	1.212
	.025	-.297	-.112	-.077	-.213	.347	.472	.551	.497	.367	.232	-.062
	.050	a-.684	a-.362	-.188	-.169	a.080	a.232	a.240	a.294	a.136	a-.007	a-.273
	.100	-.810	-.594	-.401	-.251	-.114	.018	a-.001	.060	-.084	-.198	-.489
	a.200	-.846	-.670	-.505	-.361	-.253	-.132	-.123	-.403	-.234	-.325	-.583
	.300	-.831	-.690	-.558	-.437	-.331	-.233	-.167	-.202	-.312	-.387	-.625
	.400	-.905	-.767	-.632	-.518	-.435	-.315	-.240	-.281	-.414	-.488	-.678
	.500	-.944	-.794	-.702	-.601	-.472	-.385	-.318	-.351	-.462	-.553	-.728
	.600	-.948	-.851	-.739	-.668	-.560	-.486	-.440	-.467	-.560	-.626	-.802
	.700	-.499	-.482	-.799	-.676	-.603	-.538	-.459	-.513	-.600	-.638	-.727
	.800	-.500	-.312	-.276	-.293	-.428	-.632	-.622	-.645	-.532	-.336	-.316
	.900	-.318	-.266	-.232	-.190	-.160	-.133	-.122	-.128	-.158	-.175	-.256
	.950	-.228	-.238	-.213	-.166	-.133	-.106	-.088	-.096	-.123	-.128	-.224
Lower surface	.0375	.550	.408	.274	.114	-.094	-.512	-.649	-.610	-.218	.044	.285
	.075	.426	.303	.194	.073	-.067	-.415	-.563	-.519	-.139	.024	.195
	.150	.328	.232	.145	.051	-.064	-.201	-.486	a-.330	-.114	.003	.130
	.250	.228	.145	.070	.002	-.081	-.176	-.446	-.219	-.126	-.028	.062
	.350	.171	.098	.034	-.023	-.095	a-.179	-.380	-.252	-.133	-.052	.020
	.450	.098	.037	-.019	-.067	-.120	-.199	-.275	-.263	-.148	-.085	-.031
	.550	.058	.002	-.054	-.096	-.140	-.205	-.296	-.248	-.167	-.112	-.065
	.650	a.002	-.041	-.091	-.122	a-.166	a-.206	-.335	-.306	-.225	-.170	a-.102
	.750	-.045	-.085	-.131	-.157	-.183	-.199	-.353	-.281	-.205	-.169	-.142
	.850	-.088	-.111	-.145	-.160	-.171	-.157	-.191	-.142	-.183	-.158	-.153
	.925	a-.115	-.124	-.118	-.121	-.123	-.110	-.088	-.093	-.131	-.141	-.180
	a.975	-.091	-.084	-.085	-.050	-.061	-.020	-.020	-.048	-.045	-.070	-.156
	a1.000	0	0	-.020	.020	.051	.100	.070	.020	.071	.051	-.051

a Faired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.66°.

J	1.060	1.108	1.158	1.218	1.286	1.349	1.359	1.379	1.309	1.242	1.197	1.137	1.080
M_x	.954	.964	.972	.975	.991	.992	1.024	1.002	.988	.973	.971	.963	.953
α_x'	4.49	3.60	2.70	1.62	.42	-.66	-.83	-1.18	.03	1.20	2.00	3.08	4.12
$\Delta\beta$	.74	.72	.70	.68	.66	.63	.63	.62	.65	.67	.69	.71	.73
α_1	1.97	1.77	1.35	1.01	.53	.07	-.28	-.19	.30	.81	1.12	1.51	1.84
c_n	.5843	.5280	.4029	.3022	.1592	.0210	-.0849	-.0580	.0906	.2432	.3333	.4486	.5473
c_m	-.1112	-.1131	-.1014	-.0890	-.0735	-.0683	-.0572	-.0644	-.0749	-.0844	-.0949	-.1103	-.1053
c_c	.0204	.0284	.0332	.0336	.0353	.0361	.0414	.0429	.0356	.0347	.0351	.0321	.0220

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.249	1.254	1.258	1.260	1.272	1.270	1.290	1.276	1.267	1.259	1.258	1.253	1.248
.025	.165	.246	.329	.412	.497	.562	.577	.589	.525	.443	.371	.286	.087
.050	a-.207	a-.165	a-.015	.084	.107	a.226	a.271	a.270	.174	a.127	a.051	a-.077	a-.299
.100	-.431	-.351	-.198	-.121	-.010	.071	.132	.122	.033	-.074	-.140	-.256	-.501
.200	a-.440	-.403	-.291	-.221	-.116	-.038	.030	.016	-.067	-.181	-.233	-.353	-.541
.300	-.503	-.463	-.355	-.295	-.203	-.147	-.083	-.097	-.175	-.255	-.317	-.422	-.599
.400	-.619	-.571	-.470	-.405	-.324	-.268	-.201	-.220	-.292	-.360	-.420	-.492	-.702
.500	-.661	-.615	-.531	-.475	-.402	-.323	-.259	-.278	-.357	-.440	-.488	-.556	-.732
.600	-.645	-.613	-.531	-.482	-.414	-.364	-.302	-.324	-.389	-.460	-.503	-.581	-.744
.700	-.684	-.667	-.599	-.556	-.471	-.418	-.355	-.379	-.430	-.520	-.568	-.627	-.784
.800	-.497	-.790	-.755	-.700	-.640	-.605	-.534	-.562	-.613	-.667	-.706	-.785	-.651
.900	-.364	-.405	-.363	-.364	-.680	-.726	-.648	-.684	-.720	-.398	-.365	-.384	-.462
.950	-.351	-.382	-.331	-.302	-.314	-.442	-.628	-.681	-.373	-.289	-.308	-.356	-.447
Lower surface													
.0375	.459	.365	.252	.127	-.128	-.337	-.410	-.420	-.281	.046	.175	.294	.308
.075	.380	.300	.211	.113	-.046	-.265	-.343	-.346	-.148	.049	.144	.233	.226
.150	.290	.224	.166	.090	-.024	-.171	-.278	-.275	-.080	.020	.101	.158	.149
.250	.203	.145	.099	.036	-.062	-.124	-.271	-.271	-.104	.008	.073	.130	.066
.350	.153	.099	.060	.004	-.109	-.165	-.297	-.272	-.153	-.039	.024	.061	.019
.450	.102	.050	.025	-.017	-.103	-.169	-.242	-.193	-.132	-.033	.007	.034	-.019
.550	.042	-.007	-.030	-.068	-.135	-.204	-.239	-.243	-.159	-.097	-.053	-.030	-.084
.650	-.038	-.091	-.117	-.155	-.216	-.262	-.279	-.284	-.240	-.179	-.145	-.121	-.169
.750	-.058	a-.146	a-.162	a-.198	-.237	a-.301	a-.311	a-.321	-.271	a-.226	a-.174	a-.161	-.190
.850	-.109	-.164	-.172	-.204	-.267	-.323	-.339	-.348	-.292	-.231	-.189	-.177	-.234
.925	-.104	-.155	-.171	-.196	-.272	-.323	-.344	-.350	-.294	-.223	-.193	-.178	-.230
.975	a-.026	-.113	-.156	-.152	-.245	-.296	-.310	-.300	-.163	-.142	-.169	-.160	-.209
1.000	a.207	0	-.128	-.051	.151	.100	-.100	.050	.252	.162	-.102	-.102	-.170

a Faired value.

NACA

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.53°.

J	1.479	1.594	1.725	1.857	1.952	2.090	2.198	2.353	2.500	2.409	2.282	2.132	2.022	1.918	1.800	1.667	1.538
M_r	.532	.545	.559	.574	.580	.594	.609	.624	.641	.629	.616	.599	.586	.571	.563	.546	.539
α_r'	12.04	10.17	8.15	6.19	4.84	2.97	1.55	-.37	-2.11	-1.06	.49	2.42	3.88	5.32	7.04	9.04	11.07
$\Delta\beta$	.24	.23	.23	.22	.21	.20	.19	.17	.15	.16	.17	.19	.20	.21	.22	.23	.23
u_d	2.66	2.47	2.12	1.96	1.72	1.44	1.13	.62	.19	.42	.76	1.27	1.59	1.81	1.97	2.23	2.60
c_n	.8986	.7828	.6727	.6248	.5505	.4638	.3641	.1996	.0617	.1371	.2475	.4096	.5093	.5793	.6290	.7091	.8211
c_m	-.0768	-.0508	-.0320	-.0389	-.0463	-.0470	-.0471	-.0590	-.0608	-.0620	-.0597	-.0504	-.0483	-.0483	-.0347	-.0321	-.0582
c_c	-.0028	-.0135	-.0160	-.0164	-.0048	-.0054	-.0125	.0051	.0066	.0069	.0057	-.0095	-.0168	-.0084	-.0233	-.0197	-.0148

	x/b	Pressure coefficient, P																
Upper surface	0.000	1.072	1.076	1.079	1.085	1.086	1.091	1.096	1.101	1.107	1.102	1.098	1.092	1.088	1.084	1.081	1.076	1.074
	.025	-.581	-.660	-.847	-.880	-.832	-.774	-.693	.106	.333	.322	.300	a-.441	a-.716	-.784	-.845	-.908	-.967
	.050	-1.069	-1.140	-1.255	-1.190	-1.136	-1.012	-.483	-.173	.061	.040	.013	-.476	-.713	-1.017	-1.110	-1.186	-1.260
	.100	-1.038	-1.242	-1.290	-1.205	-.760	-.599	-.426	-.212	-.038	-.142	-.308	-.508	-.667	-.800	-1.166	-1.259	-1.333
	.200	-.900	-.941	-.741	-.603	-.568	-.506	-.428	-.332	-.243	-.297	-.376	-.465	-.533	-.586	-.583	-.832	-.942
	a.300	-.868	-.827	-.620	-.568	-.540	-.497	-.424	-.371	-.270	-.316	-.390	-.443	-.475	-.519	-.520	-.687	-.874
	.400	-.801	-.749	-.555	-.524	-.502	-.465	-.405	-.337	-.269	-.309	-.368	-.433	-.484	-.519	-.508	-.613	-.798
	.500	-.684	-.580	-.447	-.456	-.444	-.422	-.375	-.327	-.276	-.306	-.350	-.396	-.434	-.456	-.445	-.461	-.650
	.600	a-.575	-.435	-.380	-.358	-.376	-.378	-.339	-.318	-.274	-.299	-.333	-.387	-.441	-.436	-.404	-.377	-.493
	.700	-.477	-.341	-.292	-.326	-.335	-.339	-.318	-.303	-.277	-.292	-.313	-.328	-.343	-.337	-.308	-.276	-.410
	.800	-.395	-.258	-.216	-.248	-.274	-.290	-.293	-.291	-.282	-.287	-.296	-.294	-.289	-.276	a-.228	-.204	-.315
	.900	-.315	-.199	-.124	-.100	-.107	.117	-.131	-.138	-.142	-.142	-.143	-.132	-.120	-.114	-.106	-.124	-.234
	.950	-.273	-.154	-.053	-.009	.004	.006	-.001	-.006	-.012	-.008	-.007	.001	.002	-.002	-.020	-.073	-.197
Lower surface	.0375	.781	.743	.686	.609	.511	.332	.147	-.140	-.446	-.258	-.019	.245	.417	.554	.646	.726	.756
	.075	.622	.586	.528	.450	.362	.215	.081	-.109	-.311	-.184	-.033	.152	.286	.398	.485	.565	.603
	.150	.473	.445	.390	.332	.260	.151	.060	-.075	-.209	-.123	-.017	.100	.202	.287	.360	.425	.460
	.250	.343	.317	.272	.227	.170	.092	.020	-.075	-.164	-.106	-.029	.057	.126	.190	.246	.302	.329
	.350	.263	.245	.208	.171	.123	.061	.008	-.065	-.136	-.088	-.029	.039	.094	.145	.190	.234	.258
	a.450	.187	.176	.150	.122	.089	.035	0	-.060	-.120	-.077	-.032	.020	.060	.109	.131	.168	.189
	.550	.125	.122	a.101	.086	.059	.010	-.017	-.063	-.102	-.079	-.043	-.003	.032	.066	.093	.118	.125
	.650	.032	.042	.034	.030	.008	-.029	-.048	-.078	-.106	-.093	-.070	-.041	-.013	.016	.037	.053	.047
	.750	-.010	.014	.021	.030	.016	-.009	-.023	-.042	-.056	-.047	-.036	-.017	0	.018	.026	.030	.007
	.850	-.083	-.044	-.016	.011	.008	-.003	-.006	-.015	-.017	-.011	-.012	-.007	0	.008	.004	-.014	-.053
	.925	-.118	-.060	-.007	.034	.039	.039	.047	.049	.053	.053	.048	.043	.038	.038	.022	-.016	-.080
	a.975	-.091	.005	.059	.122	.139	.124	.149	.149	.150	.181	.139	.151	.159	.103	.097	.062	-.082
	1.000	.041	.133	.163	.213	.303	.232	.241	.271	.220	.291	.251	.312	.272	.182	.203	.214	-.020

a Faired value.

NACA

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued.

(g) N = 1350 rpm; $\beta_{0.75R}$ = 44.53°.

J	1.647	1.758	1.866	1.962	2.059	2.165	2.278	2.399	2.512	2.442	2.352	2.221	2.108	2.011	1.906	1.805	1.685
M_x	.648	.662	.678	.686	.698	.712	.728	.746	.763	.751	.736	.715	.701	.690	.678	.664	.653
a_x'	9.34	7.65	6.06	4.70	3.38	1.96	.54	-.93	-2.24	-1.42	-.37	1.25	2.73	4.03	5.49	6.95	8.76
$\Delta\beta$	.32	.32	.31	.30	.28	.27	.25	.22	.20	.21	.23	.26	.28	.29	.30	.31	.32
a_1	2.38	2.27	2.11	1.90	1.66	1.30	.89	.51	.21	-.38	-.61	1.09	1.46	1.76	2.02	2.24	2.42
c_n	.7578	.7247	.6764	.6088	.5313	.4200	.2888	.1646	.0688	.1235	.1994	.3526	.4684	.5661	.6451	.7144	.7702
c_m	-.0380	-.0383	-.0397	-.0436	-.0425	-.0518	-.0603	-.0646	-.0662	-.0681	-.0685	-.0600	-.0525	-.0487	-.0430	-.0432	-.0298
c_0	-.0122	-.0279	-.0279	-.0256	-.0190	-.0114	-.0021	.0014	.0077	.0052	.0060	-.0019	-.0093	-.0157	-.0221	-.0251	-.0294

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.109	1.114	1.120	1.124	1.128	1.134	1.140	1.148	1.154	1.150	1.143	1.135	1.130	1.125	1.120	1.115	1.111
.025	-.441	-1.084	-1.026	-.977	-.926	a-.504	a0	a.218	-.390	-.372	-.358	-.086	-.424	-.735	-.867	-1.012	-1.085
.050	-1.233	-1.379	-1.293	-1.239	-1.190	a-.513	-.152	a.057	-.249	-.102	a.049	a-.257	-.767	-1.109	-1.266	-1.349	-1.398
.100	-1.364	-1.564	-1.496	-.808	-.685	-.512	-.320	-.158	.001	a-.140	-.207	-.409	-.616	-.693	-1.226	-1.476	-1.559
.200	-.941	-.586	-.613	-.626	-.584	-.509	-.431	-.354	-.267	-.313	-.375	-.468	-.550	-.605	-.619	-.599	-.881
a.300	-.821	-.580	-.588	-.575	-.554	-.506	-.442	-.383	-.289	-.330	-.391	-.463	-.519	-.574	-.595	-.577	-.750
.400	-.717	-.563	-.558	-.554	-.529	-.478	-.427	-.374	-.309	-.344	-.386	-.451	-.506	-.539	-.552	-.555	-.651
.500	-.543	-.492	-.491	-.487	-.476	-.436	-.403	-.369	-.322	-.348	-.376	-.423	-.458	-.482	-.484	-.495	-.490
.600	-.388	-.405	-.418	-.421	-.423	-.401	-.381	-.367	-.336	-.350	-.372	-.416	-.440	-.443	-.440	-.444	-.380
.700	-.319	-.341	-.355	-.363	-.372	-.358	-.355	-.346	-.335	-.342	-.345	-.360	a-.385	-.369	-.354	-.352	-.287
.800	-.247	-.265	-.280	-.283	-.299	-.303	-.315	-.316	-.319	-.319	-.315	-.318	-.305	-.292	-.273	-.276	-.216
.900	-.181	-.110	-.090	-.087	-.099	-.102	-.117	-.119	-.127	-.131	-.125	-.126	-.108	-.094	-.085	-.099	-.139
.950	-.079	.004	.027	.028	.024	.029	.024	.022	.018	.016	.020	.019	.025	.027	.032	.016	-.089
Lower surface																	
.0375	.689	.700	.608	.507	.369	.206	-.018	-.266	a-.360	-.401	-.170	.086	.306	.446	.566	.669	.695
.075	.580	.542	.458	.363	.248	.129	-.036	-.187	-.303	-.271	-.135	.038	.203	.314	.419	.509	.587
.150	.438	.405	.335	.260	.175	.089	-.025	-.133	-.242	-.191	-.097	-.024	.141	.217	.285	.359	.404
.250	.310	.288	.236	.174	.107	.042	-.036	-.116	-.196	-.154	-.088	-.001	.081	.145	.211	.268	.305
.350	.238	.222	.183	.133	.075	.023	-.037	-.100	-.160	-.133	-.077	-.012	.055	.108	.163	.211	.237
a.450	.162	.157	.122	.072	.038	.010	-.050	-.110	-.140	-.120	-.079	-.031	.027	.065	.105	.144	.170
.550	.102	.113	.082	.039	.007	-.011	-.054	a-.110	-.121	-.105	-.077	-.041	.001	.033	.072	.108	.111
.650	.038	a.072	.040	.023	-.023	-.047	-.076	-.100	-.121	-.114	-.094	a-.041	-.033	.011	.032	.053	a.056
.750	0	.043	.037	.013	-.012	-.022	-.040	-.053	-.063	-.064	-.053	-.038	a-.032	.002	.026	.045	.020
.850	-.054	.020	.021	.005	-.005	-.006	-.012	-.014	-.012	-.016	-.015	-.007	.002	.018	.028		-.021
.925	-.067	.043	.050	.042	.036	.049	.053	.054	.059	.055	.050	.044	.042	.042	.049	.054	-.028
a.975	.004	.122	.109	.181	.133	.176	.157	.152	.162	.162	.179	.162	.146	.127	.130	.137	.042
a1.000	.306	.305	.203	.354	.252	.392	.291	.341	.280	.320	.331	.341	.302	.253	.273	.254	.204

a Faired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.53°.

J	2.030	2.101	2.192	2.303	2.409	2.374	2.264	2.128	2.060
M_x	.829	.839	.859	.876	.896	.888	.864	.841	.829
α_x'	3.76	2.81	1.62	.25	-1.06	-.62	.71	2.46	3.36
$\Delta\beta$	.43	.40	.37	.33	.29	.30	.34	.39	.43
α_1	2.15	1.82	1.39	.82	.14	.35	.93	1.61	1.96
c_n	.6900	.5862	.4492	.2665	.0451	.1127	.2987	.5182	.6303
c_m	-.0695	-.0665	-.0711	-.0802	-.0746	-.0754	-.0766	-.0713	-.0717
c_c	-.0174	-.0151	-.0096	-.0086	.0015	.0041	.0029	-.0073	-.0132

c/b	Pressure coefficient, P								
Upper surface									
0.000	1.184	1.188	1.198	1.206	1.217	1.212	1.201	1.189	1.184
.025	-.417	-.393	-.352	a.075	a.150	a.267	.228	-.049	-.219
.050	a-.564	a-.429	-.397	-.096	.090	.084	.052	-.184	-.417
.100	-.702	-.505	-.300	-.098	.082	.019	-.159	-.416	-.604
.200	a-.795	a-.641	-.616	a-.214	-.083	.197	-.398	-.619	-.748
.300	-.821	-.718	-.532	-.389	-.279	-.306	-.435	-.643	-.774
.400	-.840	-.716	-.569	-.421	-.296	-.327	-.475	-.650	-.770
.500	-.856	-.763	-.636	-.482	-.382	-.392	-.516	-.721	-.802
.600	-.844	-.801	-.683	-.558	-.464	-.484	-.590	-.768	-.892
.700	-.276	-.333	-.662	-.585	-.507	-.524	-.627	-.370	-.260
.800	-.113	-.109	-.126	-.403	-.303	-.255	-.167	-.115	-.109
.900	.035	.038	.029	-.011	-.038	-.028	.024	.044	.044
.950	.111	.108	.092	.042	.002	.016	.080	.183	.128
Lower surface									
.0375	.483	.370	.176	-.123	-.612	-.536	-.022	.307	.429
.075	.361	.270	.125	-.064	-.504	-.348	-.015	.224	.316
.150	.272	.202	.087	-.066	-.333	-.152	-.027	.160	.233
.250	.207	.149	.065	-.048	-.133	-.128	-.015	.122	.180
.350	.168	.119	.046	a-.050	-.135	-.109	-.020	.094	a.128
.450	a.122	.046	a.019	a-.060	-.151	a-.100	a-.039	a.043	a.096
.550	.084	-.010	a-.010	-.068	a-.162	-.106	a-.061	a.008	.079
.650	.052	.028	-.037	a-.068	-.141	-.128	-.076	-.002	a.056
.750	.052	.027	-.011	-.052	-.086	-.077	-.039	.018	.043
.850	.067	.047	.024	-.006	-.032	-.022	.006	.046	.065
.925	.100	.089	.070	.042	.018	.027	.057	.094	.106
a.975	.166	.163	.189	.197	.160	.105	.171	.220	.247
a1.000	.283	.292	.503	.472	.451	.251	.402	.403	.505

a Faired value.

NACA

TABLE 8.—PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(1) M = 0.56; $\beta_{0.75R}$ = 44.53°.

J	2.057	2.138	2.138	2.173	2.213	2.252	2.277	2.316	2.364	2.414	2.435	2.487
M_r	.923	.842	.834	.884	.871	.862	.854	.845	.836	.826	.815	.805
α_r'	3.40	2.33	2.33	1.88	1.37	.87	.56	.07	-.50	-1.11	-1.34	-1.95
$\Delta\beta$	.46	.42	.42	.41	.39	.37	.36	.34	.31	.28	.27	.24
α_1	1.46	1.40	1.32	1.23	1.15	1.04	.93	.82	.66	.51	.33	.13
c_n	.4667	.4496	.4256	.3969	.3719	.3357	.3017	.2677	.2136	.1675	.1082	.0422
c_m	-.0799	-.0756	-.0743	-.0636	-.0665	-.0657	-.0696	-.0701	-.0712	-.0754	-.0756	-.0788
a_0	.0153	.0143	.0133	.0087	.0022	-.0013	-.0005	-.0036	-.0056	-.0053	-.0026	-.0006

x/b	Pressure coefficient, P											
Upper surface												
0.000	1.231	1.189	1.186	1.210	1.204	1.199	1.195	1.191	1.187	1.182	1.177	1.172
.025	-.043	-.051	-.028	-.004	[a]-.204	[a]-.245	[a]-.175	[a]-.225	[a]-.159	[a]-.055	[a].095	[a].210
.050	-.141	-.205	-.207	-.224	-.249	-.269	-.293	-.317	-.146	-.077	-.005	.046
.100	-.352	-.371	-.345	-.330	-.305	-.271	-.232	-.201	-.134	-.100	-.050	-.008
.200	[a]-.470	[a]-.495	[a]-.454	[a]-.435	[a]-.402	[a]-.375	-.335	[a]-.318	[a]-.286	-.230	-.167	-.058
.300	-.528	-.560	-.533	-.516	-.489	-.468	-.434	-.420	-.369	-.338	-.285	-.250
.400	-.573	-.622	-.603	-.587	-.572	-.554	-.508	-.472	-.416	-.371	-.371	-.335
.500	-.636	-.695	-.682	-.674	-.660	-.624	-.582	-.536	-.474	-.459	-.414	-.382
.600	-.704	-.770	-.753	-.744	-.724	-.681	-.649	-.629	-.533	-.517	-.471	-.437
.700	-.730	-.779	-.738	-.721	-.722	-.709	-.688	-.606	-.495	-.453	-.408	-.392
.800	-.282	-.289	-.255	-.229	-.207	-.195	-.209	-.247	-.287	-.313	-.324	-.331
.900	-.239	-.251	-.211	-.172	-.125	-.048	-.022	-.038	-.053	-.074	-.087	-.102
.950	-.220	-.246	-.202	-.154	-.094	-.002	.057	.068	.074	.062	.053	.042
Lower surface												
.0375	.301	.235	.216	.169	.094	.022	-.061	-.144	-.304	-.496	-.726	-.903
.075	.222	.162	.146	.108	[a].073	.003	-.053	-.104	-.164	-.197	-.224	-.480
.150	.162	.112	.103	.072	.030	-.011	-.051	-.087	-.124	-.163	-.196	-.207
.250	.094	.048	.043	.022	-.013	-.040	-.070	-.096	-.115	-.144	-.167	-.190
.350	[a].034	[a]-.009	[a]-.013	[a]-.029	[a]-.060	[a]-.077	[a]-.097	[a]-.113	[a]-.114	-.122	-.139	-.158
.450	-.022	-.064	-.062	-.076	-.095	-.105	-.112	-.120	-.118	-.133	-.143	-.158
[a].550	-.072	-.113	-.110	-.110	-.120	-.125	-.121	-.120	-.117	-.136	-.135	-.147
.650	-.114	-.153	-.140	-.140	-.141	-.140	-.124	-.114	-.099	-.108	-.109	-.116
.750	[a]-.142	-.167	-.149	-.138	-.123	-.097	-.078	-.069	-.053	-.056	-.056	-.082
.850	-.152	-.176	-.149	-.127	-.098	-.056	-.027	-.016	.006	.002	.006	.001
.925	-.144	-.181	-.152	-.122	-.077	-.020	.022	.040	.064	.060	.065	.062
[a].975	-.115	-.175	-.133	-.103	-.027	.042	.096	.132	.120	.181	.136	.158
[a]1.000	-.075	-.140	-.095	-.025	.025	.110	.200	.250	.185	.360	.275	.325

[a] Faired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Continued

(j) M = 0.60; $\beta_{0.75R}$ = 44.53°.

	2.057	2.085	2.124	2.163	2.209	2.255	2.301	2.318	2.373	2.418	2.458	2.490
J	2.057	2.085	2.124	2.163	2.209	2.255	2.301	2.318	2.373	2.418	2.458	2.490
M_T	.988	.980	.968	.950	.938	.924	.908	.904	.889	.881	.869	.863
$\alpha_T{}'$	3.40	3.03	2.51	2.01	1.41	.83	.27	.05	-.62	-1.16	-1.63	-2.00
$\Delta\beta$	.49	.47	.45	.43	.41	.38	.35	.34	.31	.28	.27	.25
α_1	1.30	1.30	1.22	1.13	.91	.73	.58	.49	.38	.25	.19	.08
c_n	.4157	.4173	.3919	.3640	.2935	.2374	.1886	.1588	.1218	.0828	.0635	.0267
c_m	-.1061	-.1064	-.1010	-.0974	-.0778	-.0676	-.0599	-.0635	-.0664	-.0737	-.0801	-.0878
c_o	.0306	.0325	.0307	.0283	.0253	.0214	.0184	.0162	.0149	.0096	.0096	.0075

x/b	Pressure coefficient, P											
Upper surface												
0.000	1.267	1.263	1.256	1.246	1.239	1.231	1.223	1.221	1.213	1.209	1.202	1.200
.025	.111	.099	*.113	.134	.180	.217	.234	.264	.307	.338	.363	.398
.050	a-.033	a-.050	a-.038	.015	-.005	-.026	-.045	a.063	a.110	a.130	a.145	a.200
.100	-.175	-.194	-.189	-.189	-.160	-.132	-.121	-.100	-.061	-.039	-.018	.020
.200	-.312	-.319	-.310	-.309	-.275	-.247	-.238	-.225	-.217	-.241	-.201	-.150
.300	-.368	-.392	-.389	-.390	-.359	-.342	-.344	-.328	-.313	-.306	-.296	-.263
.400	-.420	-.447	-.459	-.465	-.438	-.434	-.439	-.422	-.392	-.375	-.367	-.351
.500	-.492	-.520	-.533	-.545	-.535	-.517	a-.520	a-.510	a-.484	-.458	-.452	-.422
.600	-.564	-.597	-.610	-.623	-.606	-.591	-.583	-.580	a-.564	-.567	-.551	-.518
.700	a-.642	a-.678	a-.690	-.713	a-.654	-.614	-.628	-.624	-.622	-.600	-.588	-.561
.800	-.707	-.746	-.772	-.782	-.686	-.520	-.399	-.316	-.323	-.375	-.431	-.460
.900	-.559	-.556	-.441	-.370	-.249	-.203	-.183	-.156	-.107	-.076	-.054	-.029
.950	-.377	-.397	-.370	-.333	-.233	-.186	-.164	-.133	-.077	-.036	0	.048
Lower surface												
.0375	.266	.248	.190	.140	.054	-.038	-.118	-.260	-.477	-.608	-.706	-.800
.075	.205	.186	.136	.094	.033	-.030	-.078	-.139	-.315	-.464	-.578	-.686
.150	.157	.143	.101	.068	.016	-.034	-.071	-.123	-.250	-.358	-.358	-.502
.250	.098	.082	.046	.017	-.022	a-.050	a-.095	a.119	-.151	-.198	-.204	-.222
.350	a.043	a.030	a-.004	-.012	-.045	-.077	a.125	-.133	-.165	-.181	-.186	-.172
.450	a-.009	a-.023	a-.053	a-.063	a-.078	a-.108	-.157	-.179	-.196	a-.202	a-.203	a-.186
.550	a-.059	a-.074	a-.148	a-.112	-.116	-.141	a-.198	-.215	-.217	-.211	-.201	-.186
.650	a-.106	a-.124	-.169	a-.164	-.167	-.184	-.230	-.230	-.215	-.198	-.182	-.155
.750	-.153	-.170	-.196	-.217	-.221	-.222	-.221	-.208	-.172	-.148	-.129	-.100
.850	-.193	-.211	-.236	-.250	-.242	-.231	-.205	-.167	-.117	-.090	-.068	-.036
.925	-.199	-.219	-.240	-.251	-.224	-.189	-.161	-.128	-.078	-.045	-.019	.014
a.975	a-.176	-.211	-.215	-.220	-.168	-.126	-.100	-.073	-.025	.007	.045	.070
a1.000	-.125	-.175	-.150	-.125	-.075	-.050	-.025	-.010	.050	.075	.150	.175

aFaired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.82)(06.43) PROPELLER BLADE SECTION (x = 0.85) — Concluded

(k) M = 0.65; $\beta_{0.75R}$ = 44.53°.

J	2.083	2.117	2.139	2.161	2.189	2.221	2.243	2.286	2.326	2.381
M_r	1.102	1.089	1.083	1.072	1.060	1.051	1.040	1.026	1.015	.998
α_r	3.05	2.59	2.31	2.04	1.67	1.25	.99	.44	−.05	−.70
$\Delta\beta$	.56	.53	.52	.50	.48	.46	.45	.42	.39	.35
α_i	1.06	1.03	.98	.94	.83	.69	.56	.43	.32	.12
c_n	.3389	.3292	.3163	.3043	.2688	.2241	.1831	.1400	.1026	.0389
c_m	−.1087	−.1105	−.1106	−.1097	−.1052	−.1016	−.0971	−.0963	−.0944	−.0880
c_c	.0364	.0381	.0382	.0399	.0422	.0422	.0415	.0419	.0410	.0422

x/b	Pressure coefficient, P									
Upper surface										
0.000	1.341	1.332	1.328	1.321	1.313	1.307	1.300	1.291	1.284	1.273
.025	.274	.285	.289	.304	.324	.343	.160	.377	.390	.408
.050	.221	.209	.195	.184	.168	.156	−.063	.126	a.170	a.210
.100	−.009	−.001	.005	.012	.018	.032	−.162	.052	.059	.069
a.200	−.136	−.134	−.127	−.107	−.105	−.085	−.275	−.069	−.057	−.063
.300	−.213	−.217	−.207	−.195	−.187	−.174	−.372	−.168	−.168	−.169
.400	−.279	−.282	−.275	−.269	−.264	−.255	−.456	−.255	−.258	−.265
.500	−.339	−.348	−.346	−.342	−.341	−.338	−.546	−.348	−.349	−.344
.600	−.408	−.423	−.427	−.426	−.425	−.417	−.623	−.421	−.424	−.429
a.700	−.480	−.497	−.505	−.506	−.507	−.504	−.703	−.497	−.508	−.519
.800	−.553	−.575	−.581	−.584	−.589	−.587	−.786	−.588	−.599	−.621
.900	−.632	−.663	a−.672	−.680	−.683	−.686	−.899	−.713	−.730	−.758
.950	−.617	−.660	−.676	−.685	−.699	−.711	−.928	−.742	−.759	−.780
Lower surface										
.0375	.295	.257	.219	.183	.117	.048	−.255	−.146	−.227	−.331
.075	.239	.206	.176	.146	.095	.048	−.221	−.093	−.171	−.274
.150	.198	.172	.148	.129	.089	.053	−.187	−.047	−.121	−.222
.250	.141	.120	.102	.088	.055	.028	−.211	−.061	−.125	−.213
.350	.091	.070	a.052	.038	−.001	−.033	−.271	−.100	−.144	a−.225
.450	a.035	a.017	a0	a−.015	−.052	−.079	−.320	−.157	a−.173	a−.244
a.550	−.015	−.032	−.050	−.062	−.093	−.115	−.355	−.185	−.203	−.273
.650	−.064	−.080	−.092	−.101	−.129	−.152	−.384	−.210	−.236	−.297
.750	−.108	−.122	−.132	−.139	−.167	−.187	−.418	−.245	−.270	−.319
.850	−.144	−.157	−.168	−.175	−.204	−.223	−.452	−.277	−.304	−.342
.925	−.167	−.182	−.192	−.200	−.226	−.245	−.471	−.294	a−.319	a−.352
.975	−.138	−.154	a−.192	a−.190	a−.216	a−.226	−.441	−.262	a−.307	−.337
a1.000	−.055	−.050	−.160	−.118	−.170	−.133	−.352	−.180	−.260	−.307

a Faired value.

NACA

TABLE 9.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.57°.

J	0.740	0.852	0.969	1.055	1.163	1.245	1.377	1.308	1.196	1.107	1.011	0.902	0.808
M_x	.481	.493	.511	.521	.518	.534	.551	.535	.529	.515	.510	.505	.494
α_x'	9.78	7.68	5.53	3.99	2.09	.68	-1.52	-.37	1.52	3.08	4.78	6.76	8.50
$\Delta\epsilon$	.26	.26	.25	.24	.22	.21	.19	.20	.22	.23	.24	.25	.26
α_1'	2.70	2.57	1.96	1.90	1.38	.91	.35	.67	1.13	1.60	1.98	2.36	2.64
c_n	.6824	.6620	.5071	.4956	.3655	.2418	.0940	.1783	.2999	.4192	.5156	.6099	.6778
c_m	-.0338	-.0263	-.0323	-.0418	-.0432	-.0508	-.0510	-.0543	-.0525	-.0529	-.0487	-.0378	-.0376
c_o	-.0177	-.0250	-.0173	-.0164	-.0107	.0016	.0076	.0032	-.0010	-.0047	-.0105	-.0177	-.0209

	x/b	Pressure coefficient, P												
Upper surface	0.000	1.059	1.062	1.067	1.069	1.068	1.073	1.078	1.073	1.072	1.068	1.067	1.065	1.062
	.025	-.760	-.974	-.933	-.925	-.808	-.027	.243	.045	-.157	-.443	-.730	-.949	-1.045
	.050	-1.118	-1.214	-1.179	-1.165	-.524	-.266	-.023	-.186	-.387	-.634	-.963	-1.216	-1.291
	.100	-1.150	-1.237	-.823	-.612	-.415	-.262	-.086	-.220	-.347	-.506	-.666	-1.106	-1.220
	.200	a-.881	a-.857	-.494	-.494	a-.372	a-.264	a-.143	a-.263	-.308	-.405	-.518	-.668	-.822
	.300	-.695	-.579	-.463	-.433	-.354	-.281	a-.181	-.286	-.325	-.397	-.459	-.483	a-.594
	.400	-.546	-.466	-.416	-.399	-.337	-.281	-.215	-.294	-.316	-.374	-.419	-.426	-.471
	.500	-.429	-.397	-.381	-.376	-.332	-.290	-.236	-.309	-.316	-.361	-.391	-.384	-.386
	.600	-.335	-.336	-.341	-.349	-.318	-.288	-.252	-.316	-.310	-.342	-.363	-.339	-.320
	.700	-.264	-.277	-.289	-.297	-.283	-.262	-.232	-.290	-.274	-.299	-.307	a-.298	-.260
	.800	-.184	-.195	-.194	-.215	-.221	-.212	-.194	-.266	-.249	-.259	-.259	-.252	-.241
	.900	-.137	-.113	-.111	-.123	-.120	-.119	-.117	-.160	-.121	-.130	-.186	-.107	a-.191
	.950	a-.088	a-.036	-.017	-.034	-.034	-.037	-.039	-.077	-.035	-.043	-.042	-.034	a-.138
Lower surface	.0375	a.610	.530	.499	.416	.220	.031	-.209	-.124	.145	.333	.464	.560	a.564
	.075	.504	.471	.375	.303	.166	.022	-.151	-.094	.105	.240	.341	.423	a.479
	.150	.380	.351	.277	.222	.119	.022	-.086	-.064	.073	.171	.247	.313	.366
	.250	.261	.240	.182	.140	.063	-.006	-.090	-.081	.034	.105	.161	.214	.256
	.350	.203	.184	.138	.104	.045	-.001	-.060	-.064	.018	.075	.120	.163	.197
	.450	.142	.128	.094	.067	.022	-.018	-.060	-.073	.003	.050	.083	.117	.143
	.550	.091	.095	.067	.047	.009	-.023	-.056	-.077	-.004	.030	.055	.086	.101
	.650	.059	.059	.044	.029	0	-.023	-.043	-.069	-.010	.016	.034	.058	.066
	.750	.027	.031	.030	.023	0	-.018	-.027	-.060	-.010	.009	.025	.040	.040
	a.850	.002	.019	.036	.040	.020	.018	-.006	-.023	-.010	.023	.031	.031	.016
	a.925	-.005	.022	.051	.065	.059	.077	a.040	a.036	a.061	.069	.050	.044	.021
	a.975	.043	.061	.125	.124	.122	.152	.091	.116	.148	.128	.093	.082	.064
	a1.000	.140	.158	.291	.227	.276	.228	.191	.212	.244	.195	.145	.157	.138

a Faired value.

TABLE 9.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) - Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.57°.

J	1.026	1.095	1.185	1.285	1.378	1.298	1.233	1.142	1.058	0.967	0.928	0.874
M_X	.615	.618	.630	.635	.643	.639	.635	.618	.610	.603	.596	.595
α_X'	4.51	3.28	1.71	.01	-1.53	-.21	.89	2.46	3.93	5.57	6.28	7.27
$\Delta\beta$	.34	.33	.31	.29	.26	.28	.30	.32	.33	.35	.35	.36
α_1	2.06	1.76	1.42	.79	.39	.72	1.01	1.45	1.88	2.23	2.39	2.57
c_n	.5357	.4599	.3742	.2175	.1041	.1908	.2688	.3816	.4905	.5798	.6191	.6629
c_m	-.0436	-.0422	-.0404	-.0517	-.0618	-.0582	-.0585	-.0488	-.0487	-.0427	-.0390	-.0305
c_0	-.0125	-.0146	-.0122	.0042	.0051	.0034	.0018	-.0063	-.0101	-.0129	-.0149	-.0196

	x/b	Pressure coefficient, P											
Upper surface	0.000	1.097	1.098	1.103	1.105	1.107	1.106	1.105	1.098	1.096	1.093	1.091	1.091
	.025	-.873	-.855	-.779	0	[a].216	.101	-.094	-.283	-.782	[a]-1.040	-.980	-1.000
	.050	-1.212	-.734	-.504	-.216	[a].015	-.138	-.309	-.499	-.951	-1.324	-1.395	-1.415
	.100	[a]-.690	-.546	-.416	-.231	-.080	[a]-.190	-.302	-.413	-.600	-.875	-1.103	-1.304
	.200	[a]-.537	[a]-.452	[a]-.372	[a]-.262	[a]-.156	[a]-.234	-.289	[a]-.358	[a]-.494	[a]-.593	[a]-.659	[a]-.820
	.300	-.468	-.422	-.362	-.285	[a]-.204	-.257	[a]-.307	-.346	-.453	-.491	-.514	-.565
	.400	-.426	-.392	-.344	-.291	[a]-.241	-.267	-.318	-.325	-.418	-.441	-.453	-.466
	.500	-.398	-.375	-.338	-.302	[a]-.266	-.283	-.327	-.317	-.393	-.405	-.410	-.405
	.600	-.364	-.352	[a]-.320	-.306	-.282	[a]-.285	-.324	-.304	-.365	-.365	-.361	-.344
	.700	-.308	-.302	-.283	-.274	-.258	[a]-.273	-.286	-.258	-.311	-.305	-.298	-.280
	.800	[a]-.225	-.232	-.223	-.233	-.235	[a]-.231	-.255	-.219	-.261	-.243	-.232	-.213
	.900	-.108	-.110	-.100	-.118	-.124	[a]-.133	-.123	[a]-.092	-.119	[a]-.128	[a]-.126	-.097
	.950	-.014	-.015	-.008	-.026	-.039	-.030	-.027	.012	-.029	-.021	-.031	[a]-.014
Lower surface	.0375	.465	.350	.220	-.026	-.248	-.096	.067	.287	.412	.516	.562	[a].535
	.075	[a].367	.263	.165	-.018	-.179	-.062	.048	.215	.307	.396	.435	[a].451
	.150	.255	.181	[a].112	-.001	-.107	-.030	.037	.163	.175	.285	.315	.344
	.250	.174	.124	[a].073	-.028	-.110	[a]-.042	.002	.106	.140	.192	.219	[a].250
	.350	.131	.084	.056	-.015	-.071	-.030	.009	.086	.103	.146	.165	[a].189
	.450	.091	.056	.032	-.026	-.072	-.031	-.003	.067	.076	.110	.122	.138
	.550	.064	.035	.014	-.035	-.066	-.040	-.018	.046	.048	.073	.085	[a].103
	.650	.041	.017	.008	-.030	-.054	-.036	-.020	.034	.026	.045	.054	.060
	[a].750	.034	.014	.004	-.021	-.033	-.025	-.017	.032	.021	.032	.037	.036
	.850	.033	.026	.020	.006	.017	.016	.020	.054	.021	.029	.021	.019
	.925	.063	.056	.066	.060	.091	.072	.075	.093	.056	.050	.044	.032
	[a].975	.122	.126	.143	.131	.161	.195	.172	.169	.123	.104	.123	.116
	[a]1.000	.207	.252	.255	.242	.271	.424	.385	.297	.221	.239	.282	.263

[a]Faired value.

NACA

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(c) N = 1600 rpm; $\beta_{0.75R}$ = 29.57°.

J	0.960	1.030	1.119	1.181	1.267	1.354	1.423	1.376	1.307	1.220	1.141	1.069	0.996
M_x	.713	.710	.738	.743	.748	.762	.771	.770	.761	.749	.738	.734	.726
a_x'	5.69	4.37	2.86	1.78	.32	-1.14	-2.26	-1.50	-.36	1.11	1.47	3.74	5.05
$\Delta\beta$	.46	.45	.44	.43	.41	.40	.38	.39	.41	.42	.43	.44	.45
a_1	2.66	2.49	1.85	1.47	.98	.57	.25	.46	.75	1.27	1.73	2.28	2.44
c_n	.6930	.6495	.4879	.3878	.2598	.1535	.0682	.1252	.2009	.3354	.4567	.5964	.6373
c_m	-.0208	-.0288	-.0451	-.0506	-.0588	-.0650	-.0705	-.0651	-.0607	-.0556	-.0452	-.0373	-.0350
c_c	-.0436	-.0386	-.0109	-.0107	-.0009	.0053	.0053	.0057	-.0005	-.0099	-.0181	-.0271	-.0257

c/b						Pressure coefficient, P							
Upper surface													
0.000	1.134	1.133	1.144	1.146	1.148	1.154	1.158	1.158	1.154	1.149	1.144	1.142	1.139
.025	a-1.611	a-1.625	-.952	-.519	-.080	.158	.290	.182	-.016	-.419	-1.143	-1.273	-1.362
.050	-1.661	-1.655	-1.212	-.543	-.258	-.032	.112	.042	-.104	-.370	-.608	-1.368	-1.511
.100	-1.468	-1.354	-.532	-.452	-.269	-.114	-.005	-.061	-.167	-.366	-.495	-1.027	-1.336
.200	a-.838	a-.545	a-.471	a-.431	-.304	a-.196	a-.132	-.160	-.240	a-.378	-.463	a-.612	-.484
.300	-.432	-.442	-.458	-.420	-.335	-.260	-.202	-.231	-.291	-.384	-.445	-.471	a-.418
.400	-.375	-.438	-.428	-.400	-.338	-.288	-.246	-.268	-.307	-.377	-.418	-.449	-.426
.500	-.403	-.433	-.414	-.395	-.349	-.319	-.290	-.304	-.331	-.382	-.408	-.433	-.424
.600	-.386	-.407	-.391	-.384	-.353	-.343	-.328	-.334	-.348	-.378	-.390	-.401	-.401
.700	-.327	-.340	-.327	-.324	-.305	-.306	-.299	-.303	-.309	-.327	-.328	-.338	-.337
.800	-.253	-.267	-.257	-.261	-.253	-.272	-.278	-.279	-.275	-.274	-.264	-.267	-.267
.900	-.093	-.098	-.092	-.097	-.098	-.119	-.128	-.154	-.121	-.114	-.100	-.105	-.108
.950	.111	.031	.017	.007	.004	-.013	-.024	-.025	-.016	-.007	.004	.001	-.004
Lower surface													
.0375	.466	.431	.320	.209	.019	-.187	-.736	-.261	-.140	.116	.285	.407	.495
.075	.416	.354	.252	.151	.016	-.148	-.301	-.212	-.089	.083	a.212	.304	.380
.150	.320	.261	a.167	.096	a.012	a-.105	-.175	a-.155	-.055	.054	a.136	.222	.278
.250	.219	.172	.112	.055	a.005	a-.074	-.138	a-.111	-.051	a.024	.088	.143	.190
.350	.170	.130	.090	.047	-.002	-.066	-.107	-.091	-.048	a.010	.073	.116	.147
.450	.130	.097	.062	.025	a-.016	-.053	a-.098	a-.080	a-.051	0	.054	.092	.121
.550	.089	.058	.030	-.001	-.027	-.058	-.088	-.078	-.057	-.019	.017	.047	.074
.650	.059	.038	.016	-.009	-.026	-.053	-.070	-.064	-.048	-.022	.005	.030	.047
.750	.047	.023	.008	-.012	a.014	-.034	-.041	-.041	-.035	-.022	-.001	.015	.031
.850	.051	.033	.027	.017	.020	.013	.011	.005	.010	.011	.020	.030	.041
.925	.069	.060	.062	.057	.069	.068	.073	.067	.063	.058	.058	.062	.065
a.975	.185	.151	.171	.129	.155	.161	.179	.186	.149	.158	.169	.133	.164
a1.000	.731	.313	.359	.244	.273	.282	.351	.377	.253	.407	.358	.259	.364

a Faired value.

NACA

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.57°.

J	1.058	1.137	1.180	1.266	1.302	1.397	1.404	1.327	1.284	1.217	1.139	1.107	1.037
M_x	.926	.919	.943	.936	.954	.947	.971	.945	.945	.933	.931	.922	.916
a_x'	3.93	2.55	1.80	.33	-.27	-1.68	-1.96	-.69	.03	1.16	2.51	3.07	4.31
$\Delta\beta$	.71	.67	.64	.60	.58	.55	.54	.57	.59	.62	.67	.69	.72
α_1	2.14	1.83	1.44	.97	.56	-.07	-.34	.24	.65	1.17	1.60	1.91	2.25
c_n	.5592	.4838	.3815	.2602	.1492	-.0195	-.0915	.0657	.1727	.3084	.4220	.5010	.5876
c_m	-.0767	-.0755	-.0834	-.0861	-.0737	-.0708	-.0663	-.0716	-.0706	-.0824	-.0724	-.0846	-.0658
c_o	.0020	.0052	.0107	.0156	.0138	.0139	.0130	.0143	.0131	.0113	.0061	.0091	.0133

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.233	1.229	1.242	1.238	1.248	1.244	1.258	1.243	1.243	1.236	1.235	1.230	1.228
.025	-.238	-.165	-.023	.137	.217	.329	.365	.231	.129	.055	a-.157	a-.031	a.140
.050	a-.377	a-.256	a-.080	a-.040	a.104	a.230	a.278	a.155	a.075	a-.060	-.201	-.210	-.223
.100	-.514	-.347	-.172	-.070	.001	.092	.132	.042	-.017	-.090	-.260	-.387	-.571
.200	a-.569	-.456	-.332	-.224	-.157	-.062	-.025	-.116	-.167	-.228	-.387	-.474	-.622
.300	-.597	-.525	-.416	-.325	-.249	-.154	-.118	-.207	-.268	-.358	-.462	-.529	-.643
.400	-.622	-.577	-.480	-.386	-.297	-.221	-.183	-.255	-.319	-.419	-.515	-.583	-.687
.500	-.667	-.621	-.521	-.434	-.362	-.295	-.253	-.332	-.380	-.462	-.554	-.624	-.717
.600	-.707	-.680	-.593	-.519	-.453	-.391	-.347	-.422	-.467	-.539	-.619	-.681	-.773
.700	-.438	-.656	-.636	-.577	-.516	-.462	-.423	-.491	-.529	-.596	-.666	-.723	-.408
.800	-.242	-.257	-.504	-.618	-.607	-.571	-.534	-.590	-.621	-.672	-.296	-.239	-.278
.900	-.231	-.201	-.179	-.181	-.180	-.324	-.398	-.244	-.186	-.179	-.172	-.194	-.257
.950	-.212	-.186	-.155	-.137	-.120	-.109	-.099	-.117	-.120	-.135	-.148	-.176	-.245
Lower surface													
.0375	.400	.289	.166	-.047	-.343	-.521	-.564	-.482	-.274	.041	.242	.313	.422
.075	.319	.226	.132	.008	-.158	-.427	-.480	-.361	-.076	.053	.197	.251	.341
.150	.255	.180	.109	.011	-.064	-.348	-.416	-.166	-.054	.043	.150	.192	.267
.250	.166	.105	.045	a-.011	a-.056	-.318	-.395	-.165	a-.058	-.009	.082	.118	.175
.350	.134	.081	.031	-.028	-.084	-.198	-.331	-.152	-.068	-.010	.064	.093	.141
.450	.092	.046	.008	-.037	-.064	-.165	-.230	-.091	-.051	-.011	.049	.072	.114
.550	.026	-.016	-.049	a-.089	a-.096	-.161	-.217	-.125	-.108	-.078	-.024	-.005	.033
.650	-.015	-.055	-.082	-.122	-.145	-.183	-.213	-.157	-.143	-.112	a-.078	-.045	-.015
.750	-.069	-.110	-.136	-.171	-.193	-.206	-.223	-.207	-.193	-.169	-.119	-.102	-.074
.850	-.092	-.131	-.162	-.198	-.218	-.210	-.217	-.228	-.216	-.193	-.134	-.118	-.098
.925	-.087	-.108	-.124	-.156	-.178	-.152	-.120	-.183	-.172	-.148	-.112	-.107	-.100
a.975	-.051	-.043	.046	.022	-.061	-.014	.127	-.054	-.059	0	-.031	-.036	-.024
a1.000	.026	.067	.306	.213	.086	.226	.401	.151	.086	.152	.128	.103	.182

a Faired value.

NACA

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.57°.

J	1.048	1.109	1.170	1.263	1.350	1.405	1.373	1.259
M_x	1.004	1.013	1.018	1.019	1.038	1.045	1.040	1.022
α_x'	4.11	3.04	1.97	.38	-1.08	-1.98	-1.45	.45
$\Delta\beta$	.79	.76	.74	.70	.66	.64	.65	.70
α_1	2.05	1.73	1.32	.61	-.21	-.65	-.44	.54
c_n	.5334	.4533	.3488	.1619	-.0564	-.1742	-.1184	.1424
c_m	-.1333	-.1297	-.1212	-.0901	-.0615	-.0334	-.0508	-.0904
c_o	.0235	.0300	.0307	.0246	.0284	.0316	.0316	.0274

c/b	Pressure coefficient, P							
Upper surface								
0.000	1.277	1.282	1.285	1.286	1.298	1.303	1.300	1.288
.025	a-.041	a.116	a.219	.220	.379	.451	.411	.231
.050	a-.140	-.012	.110	.172	.296	.370	.319	.190
.100	a-.219	-.140	-.010	.080	.180	.239	.218	.111
.200	-.313	a-.251	a-.147	a-.064	a-.038	a.070	.089	-.030
.300	a-.388	-.330	-.243	-.165	-.056	-.016	-.014	-.134
.400	-.458	-.398	-.323	-.232	-.136	a-.087	-.101	-.219
.500	-.519	-.470	-.394	-.302	-.213	a-.161	-.192	-.289
.600	-.579	-.534	-.466	-.387	-.301	a-.243	-.261	-.370
.700	-.627	-.586	-.523	-.450	-.366	-.326	-.345	-.445
.800	-.690	-.659	-.605	-.542	-.464	-.427	-.441	-.523
.900	-.668	-.701	-.668	-.621	-.552	-.517	-.530	-.601
.950	a-.502	a-.630	a-.635	-.478	-.511	-.506	-.527	-.586
Lower surface								
.0375	.352	.259	.162	-.198	-.360	-.415	-.400	-.247
.075	.293	.216	.146	-.071	-.288	-.345	-.384	-.096
.150	.241	.177	.126	-.020	-.244	-.302	-.284	-.040
.250	.176	.127	.095	-.033	-.243	-.298	-.275	-.051
.350	a.123	a.080	.061	a-.060	a-.243	a-.298	a-.277	a-.079
.450	.072	.032	a.024	-.088	-.241	-.300	-.283	-.099
.550	.038	.002	-.015	-.087	-.207	-.306	-.278	-.093
.650	-.005	-.043	-.058	-.110	-.195	-.314	-.273	-.122
.750	-.075	-.110	-.122	-.161	-.232	-.334	-.265	-.170
.850	-.118	-.152	-.167	-.198	-.250	-.339	-.268	-.206
.925	-.094	-.113	a-.161	a-.192	-.243	-.314	-.261	-.207
.975	-.033	-.067	-.104	-.144	-.196	-.276	-.236	-.183
1.000	.104	0	0	-.076	-.100	-.225	-.175	-.127

a Faired value.

NACA

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.71°.

J	1.595	1.737	1.858	1.985	2.107	2.237	2.372	2.499	2.582	2.407	2.286	2.142	2.047	1.935	1.794	1.684
M_x	.548	.579	.597	.601	.616	.624	.640	.654	.664	.644	.632	.619	.603	.596	.584	.566
α_x'	10.17	8.03	6.28	4.51	2.90	1.24	−.40	−1.89	−2.81	−.81	.64	2.44	3.68	5.20	7.19	8.81
$\Delta\beta$	.25	.25	.24	.22	.21	.19	.17	.15	.14	.16	.18	.20	.21	.23	.24	.25
α_1	2.79	2.61	2.29	2.00	1.44	1.04	.54	.22	−.02	.39	.80	1.24	1.60	1.97	2.32	2.52
c_n	.7845	.7335	.6449	.5659	.4076	.2971	.1534	.0638	−.0051	.1108	.2291	.3515	.4510	.5575	.6521	.7087
c_m	−.0344	−.0128	−.0294	−.0358	−.0497	−.0471	−.0558	−.0629	−.0662	−.0507	−.0417	−.0346	−.0224	−.0140	.0079	.0152
c_c	−.0372	−.0445	−.0378	−.0335	−.0143	−.0093	−.0009	.0044	.0056	.0004	−.0068	−.0184	−.0201	−.0312	−.0397	−.0464
c/b								Pressure coefficient, P								
Upper surface																
0.000	1.083	1.086	1.092	1.093	1.098	1.101	1.106	1.111	1.115	1.108	1.103	1.099	1.093	1.091	1.088	1.082
.025	−1.463	−1.817	−1.715	−1.658	−.709	−.407	−.048	.203	.341	.023	−.254	−.588	−1.112	−1.600	−1.721	−1.802
.050	−1.295	−1.613	−1.602	−1.560	−.622	−.365	−.114	.075	.186	−.056	−.254	−.523	−.730	−1.266	−1.581	−1.663
.100	−1.219	−1.402	−1.016	−.654	−.479	−.321	−.160	−.027	.057	−.119	−.254	−.430	−.558	−.759	−1.323	−1.439
.200	−1.110	−.981	−.617	−.540	−.444	−.342	−.235	−.144	−.090	−.206	−.293	−.404	−.490	−.563	−.775	−1.064
.300	−.888	−.660	−.512	−.482	−.414	−.343	−.272	−.205	−.160	−.251	−.310	−.385	−.446	−.495	−.554	−.717
.400	−.676	−.497	−.448	−.431	a−.392	a−.332	a−.276	−.227	a−.202	a−.276	a−.320	a−.362	a−.423	a−.457	a−.461	−.535
.500	−.509	−.413	−.416	−.413	a−.372	a−.326	a−.290	a−.256	a−.239	a−.288	a−.319	a−.358	−.395	−.415	−.415	−.430
.600	−.382	−.341	−.360	−.368	−.347	−.321	−.302	−.276	−.259	−.294	−.311	−.339	−.361	−.368	−.357	−.344
.700	−.293	−.278	−.311	−.329	a−.297	−.307	−.297	−.284	−.275	−.293	−.301	−.311	−.323	−.323	−.299	−.275
a.800	−.217	−.196	−.220	−.262	−.226	−.245	−.248	−.248	−.243	−.240	−.243	−.249	−.270	−.283	−.258	−.244
.900	−.158	−.106	−.101	−.111	−.116	−.118	−.130	−.141	−.143	−.128	−.122	−.123	−.148	−.173	−.213	−.241
.950	−.136	−.061	−.031	−.027	−.027	−.027	−.044	−.055	−.060	−.046	−.035	−.025	−.022	−.027	−.044	−.080
Lower surface																
.0375	.520	.530	.528	a.370	a.181	.075	−.176	−.413	−.709	−.235	−.022	a.205	.339	.475	.594	a.642
.075	a.439	a.467	a.426	a.288	.151	.022	−.160	−.311	−.386	−.202	a−.011	a.178	.266	.362	.467	.511
.150	.350	.363	.307	.233	.144	−.009	a−.134	−.170	−.234	a−.156	0	.117	.187	.265	.343	.378
.250	.272	.237	.183	.124	.052	−.012	−.099	a−.111	a−.159	−.115	a0	a.029	a.125	a.190	a.243	.261
.350	.224	.217	.183	.125	.066	.001	a−.065	−.097	−.129	−.085	−.007	−.002	.088	.142	.173	.158
.450	.165	.141	.113	.071	.025	−.010	−.064	−.097	−.122	−.072	−.025	a−.010	.050	.087	.058	.037
.550	.096	.086	.069	.031	−.006	−.033	a−.072	−.097	−.112	−.079	−.045	a−.010	.014	.046	a.016	−.007
.650	a.022	.041	a.030	a.006	−.015	a−.035	a−.070	−.085	a−.097	−.110	a−.098	a−.023	a−.039	a−.016	−.071	−.103
.750	−.027	−.003	a.010	.006	.001	−.027	−.048	−.051	−.062	−.110	−.144	−.080	−.108	−.134	−.174	−.204
.850	−.047	−.024	.004	.025	.047	a.001	a0	.005	0	−.046	−.075	−.112	−.137	−.166	−.206	−.235
.925	a.015	a.006	.071	.075	a.112	.058	.048	.059	.062	.049	.047	.034	a−.051	a−.063	−.046	−.072
a.975	.163	.120	.255	.187	.206	.148	.125	.135	.140	.138	.204	.193	.080	.139	.165	.228
1.000	.398	.305	.557	.414	.322	.306	.245	.260	.270	.220	.361	.322	.242	.429	.383	.647

a Faired value.

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(g) N = 1350 rpm; $\beta_{0.75R}$ = 44.71°

J	1.535	1.658	1.759	1.882	1.988	2.076	2.197	2.285	2.419	2.564	2.456	2.343	2.238	2.117	2.003	1.904	1.815	1.744	1.703	1.590
M_x	.665	.679	.692	.702	.714	.727	.740	.754	.771	.794	.776	.756	.740	.729	.718	.705	.693	.677	.676	.670
α_x'	11.09	9.20	7.70	5.94	4.47	3.30	1.74	.64	-.95	-2.61	-1.39	-.05	1.22	2.78	4.28	5.63	6.90	7.92	8.52	10.24
$\Delta\beta$	.36	.35	.34	.32	.31	.30	.27	.25	.22	.18	.21	.23	.26	.29	.31	.32	.33	.34	.34	.35
α_1	2.85	2.98	2.81	2.63	2.29	1.89	1.38	1.03	.40	-.13	.29	.68	1.13	1.37	1.70	2.11	2.40	2.65	2.65	2.79
c_n	.7991	.8388	.7920	.7436	.6481	.5355	.3933	.2933	.1148	-.0372	.0818	.1983	.3206	.3878	.4831	.5953	.6763	.7433	.7467	.7864
c_m	-.0609	-.0373	-.0316	-.0305	-.0259	-.0287	-.0331	-.0361	-.0586	-.0714	-.0674	-.0638	-.0553	-.0462	-.0435	-.0474	-.0421	-.0354	-.0329	-.0360
c_o	-.0152	-.0298	-.0328	-.0347	-.0338	-.0401	-.0216	-.0196	.0076	.0003	.0056	.0008	-.0031	-.0093	-.0166	-.0159	-.0216	-.0201	-.0188	-.0218

c/b	Pressure coefficient, P																			
Upper surface																				
0.000	1.115	1.121	1.126	1.130	1.135	1.140	1.145	1.151	1.158	1.168	1.160	1.152	1.145	1.140	1.136	1.131	1.126	1.120	1.120	1.117
.025	-1.194	-1.408	-1.362	-1.338	-1.283	-1.211	-1.208	-1.103	.266	.385	.210	-.020	-.336	-.552	-1.126	-.835	-.933	-.833	-.703	-.970
.050	-1.135	-1.563	-1.490	-1.446	-1.371	-1.310	-1.250	-1.189	.011	.203	.068	-.106	-.336	-.543	-1.049	-1.215	-1.272	-1.342	-1.347	-1.377
.100	-.991	-1.398	-1.399	-1.289	-1.220	-.916	-.464	-.259	-.081	.037	-.042	-.172	-.333	-.489	-.608	-1.261	-1.353	-1.429	-1.436	-1.464
.200	-.840	-1.162	-1.091	-1.044	-.949	-.706	-.425	-.281	-.160	-.070	-.140	-.228	-.331	-.391	-.364	-.528	-.786	-.968	-1.018	-1.025
.300	-.728	-.951	-.898	-.809	-.705	-.754	-.392	-.303	-.220	-.150	-.200	-.284	-.336	-.327	-.323	-.363	-.514	-.655	-.733	-.732
.400	-.634	-.770	-.663	-.591	-.505	-.425	-.369	-.327	-.270	-.215	-.258	-.302	-.349	-.319	-.370	-.391	-.371	-.556	-.540	-.540
.500	-.570	-.555	-.421	-.422	-.386	-.368	-.339	-.315	-.305	-.259	-.295	-.335	-.368	-.367	-.409	-.447	-.363	-.463	-.452	-.450
.600	-.477	-.436	-.325	-.355	-.344	-.335	-.318	-.311	-.301	-.283	-.315	-.346	-.370	-.376	-.394	-.430	-.355	-.362	-.363	-.385
.700	-.400	-.353	-.271	-.309	-.312	-.302	-.297	-.301	-.290	-.288	-.318	-.330	-.333	-.333	-.345	-.353	-.345	-.284	-.277	-.321
.800	-.342	-.270	-.216	-.212	-.193	-.231	-.264	-.266	-.283	-.230	-.292	-.279	-.266	-.260	-.264	-.266	-.254	-.201	-.198	-.264
.900	-.280	-.216	-.098	-.085	-.056	-.043	-.046	-.054	-.071	-.084	-.110	-.140	-.167	-.077	-.113	-.142	-.162	-.132	-.141	-.215
.950	-.244	-.195	-.026	-.010	.004	.027	.033	.024	.011	-.003	-.025	-.047	-.045	.012	-.017	-.036	-.050	-.071	-.068	-.128
Lower surface																				
.0375	.737	.666	.659	.568	.440	.329	.151	-.021	-.225	-1.147	-.507	-.164	.080	.269	.406	.520	.604	.665	.682	.713
.075	.603	.583	.516	.455	.332	.244	.112	-.008	-.189	-.822	-.238	-.090	.060	.200	.305	.397	.470	.521	.536	.566
.150	.466	.389	.395	.311	.246	.181	.086	.003	-.121	-.154	-.156	-.056	.048	.149	.226	.297	.356	.394	.407	.433
.250	.348	.278	.289	.251	.170	.123	.049	-.001	-.088	-.126	-.122	-.049	.026	.109	.163	.213	.263	.288	.303	.319
.350	.266	.209	.229	.185	.129	.087	.030	-.017	-.080	-.131	-.102	-.051	.007	.068	.114	.159	.201	.224	.231	.244
.450	.185	.135	.167	.128	.083	.045	0	-.037	-.084	-.123	-.099	-.063	-.018	.031	.070	.106	.142	.164	.159	.171
.550	.125	.089	.125	.093	.055	.023	-.013	-.043	-.076	-.106	-.089	-.061	-.027	.012	.043	.075	.105	.114	.115	.117
.650	.077	.042	.097	.071	.041	.016	-.012	-.034	-.057	-.076	-.067	-.050	-.026	.007	.031	.055	.078	.081	.079	.072
.750	.010	-.018	.061	.046	.021	.004	-.016	-.030	-.041	-.050	-.047	-.040	-.025	-.007	.008	.025	.044	.039	.037	.013
.850	-.033	-.060	.061	.055	.041	.028	.019	.013	.015	.016	.015	.018	.017	.027	.034	.045	.054	.036	.023	-.011
.925	-.075	-.063	.066	.071	.066	.059	.061	.061	.071	.079	.072	.062	.060	.060	.061	.063	.070	.036	.014	-.042
.975	-.073	-.051	.093	.101	.102	.111	.132	.113	.111	.141	.135	.121	.116	.120	.101	.096	.119	.061	.042	-.040
1.000	-.020	0	.152	.172	.162	.181	.201	.191	.160	.220	.225	.251	.226	.226	.152	.132	.183	.122	.092	.020

[a]Faired value.

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.71°.

J	1.985	2.065	2.175	2.256	2.374	2.499	2.430	2.333	2.199	2.125	2.022
M_r	.848	.859	.874	.874	.885	.907	.929	.916	.893	.872	.864
α_r'	4.52	3.45	2.02	1.00	-.43	-1.88	-1.09	.06	1.72	2.66	4.02
$\Delta\beta$	.49	.43	.38	.35	.30	.25	.28	.32	.38	.40	.45
α_1	2.95	2.20	1.53	1.06	.49	-.38	.10	.57	1.37	1.70	2.27
c_n	.7223	.6233	.4366	.3022	.1399	-.1092	.0296	.1621	.3900	.4818	.6423
c_m	-.0615	-.0637	-.0667	-.0736	-.0785	-.0697	-.0849	-.0721	-.0682	-.0614	-.0566
c_0	-.0285	-.0215	-.0088	.0005	.0073	.0101	.0082	.0068	-.0041	-.0131	-.0114

c/b	Pressure coefficient, P.										
Upper surface											
0.000	1.192	1.198	1.205	1.205	1.211	1.223	1.234	1.227	1.215	1.204	1.200
.025	-.982	-.814	-.373	-.086	.175	.365	.286	.104	-.284	-.578	-.942
.050	-.881	-.735	-.320	-.149	.052	.221	.158	.012	-.265	-.526	-.851
.100	-.801	-.617	-.282	-.180	-.035	.105	.045	-.080	-.253	-.413	-.748
.200	-.785	-.644	-.469	-.340	-.208	-.077	-.136	-.242	-.438	-.531	-.755
.300	-.838	-.716	-.560	-.447	-.299	-.194	-.241	-.336	-.526	-.617	-.804
.400	-.819	-.773	-.634	-.517	-.403	-.291	-.309	a-.364	-.524	-.639	-.792
.500	-.851	-.765	-.613	-.522	-.421	-.319	-.364	-.447	-.584	-.680	-.842
.600	-.852	-.789	-.653	-.571	-.481	-.396	-.433	-.509	-.631	-.699	a-.854
.700	-.346	-.482	-.684	-.618	-.539	-.467	-.500	-.564	-.671	-.670	a-.673
.800	-.161	-.149	-.192	-.349	-.596	-.568	-.613	-.645	-.326	-.276	-.260
.900	-.006	-.011	-.024	-.035	-.094	-.119	-.111	-.071	-.021	-.014	-.028
.950	.077	.062	.040	.023	-.019	-.037	-.046	a-.007	.026	.056	.048
Lower surface											
.0375	.402	a.294	.120	a-.031	a-.511	a-.690	-.664	a-.365	a.087	.135	.243
.075	.328	.249	.110	a-.014	a-.284	-.607	-.560	a-.227	a.050	.124	.227
.150	.260	.191	.084	0	-.133	-.501	a-.391	-.108	.009	.098	.184
a.250	.198	.136	.054	-.001	-.098	-.445	-.240	-.075	-.014	.077	.153
.350	.153	.099	.023	-.027	-.102	-.426	-.163	-.092	-.024	.057	.121
.450	.089	.046	-.023	-.069	-.134	a-.379	-.150	-.120	-.036	a-.013	.022
.550	.041	0	-.059	-.101	-.162	-.292	-.164	-.193	-.068	a-.111	a-.105
.650	.020	a-.020	a-.069	-.104	a-.173	a-.197	a-.165	a-.194	-.153	-.166	-.191
.750	.017	-.017	-.061	-.089	-.141	-.119	-.136	-.165	-.142	-.156	-.182
.850	.046	.016	-.021	-.040	-.066	-.062	-.077	-.103	-.061	-.074	-.098
.925	.089	a.072	a.030	.025	.001	-.001	-.002	a-.020	.042	.033	a.020
a.975	.156	.141	.101	.096	.067	.062	.105	.068	.141	.141	.122
a1.000	.233	.222	.171	.176	.125	.150	.210	.151	.201	.272	.202

a Faired value.

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Continued

(i) $M = 0.60$, $\beta_{0.75R} = 44.71°$.

J	2.039	2.075	2.104	2.135	2.177	2.208	2.254	2.293	2.336	2.377	2.421	2.466	2.513	2.541
M_x	1.028	1.016	1.002	.992	.980	.969	.959	.954	.936	.926	.919	.910	.900	.899
α_x'	3.80	3.32	2.94	2.53	2.00	1.61	1.02	.55	.02	−.48	−.98	−1.49	−2.04	−2.35
$\Delta\beta$	.51	.49	.48	.46	.43	.41	.39	.36	.33	.31	.28	.25	.22	.20
α_1	1.75	1.71	1.67	1.53	1.31	1.22	.86	.72	.56	.38	.18	.02	−.10	−.20
c_n	.4942	.4872	.4731	.4335	.3731	.3469	.2433	.2065	.1586	.1074	.0496	.0054	−.0281	−.0563
c_m	−.1235	−.1275	−.1260	−.1215	−.1061	−.0963	−.0938	−.0974	−.0975	−.1014	−.1044	−.1099	−.1139	−.1205
c_0	.0237	.0249	.0261	.0243	.0202	.0214	.0181	.0182	.0173	.0159	.0162	.0151	.0134	.0119

	c/b	Pressure coefficient, P													
Upper surface	0.000	1.292	1.285	1.276	1.270	1.263	1.257	1.251	1.248	1.238	1.233	1.229	1.224	1.219	1.219
	.025	[a]−.109	[a]−.175	[a]−.128	−.100	[a]−.076	[a]−.062	[a].274	[a].300	[a].380	[a].490	.634	.620	.610	.600
	.050	−.136	−.146	−.151	−.119	−.092	−.083	[a].096	[a].137	[a].163	[a].230	[a].310	[a].314	[a].340	[a].360
	.100	−.128	−.122	−.115	−.076	−.050	−.049	−.027	−.013	−.001	.017	.051	.067	.100	.118
	.200	−.244	−.257	−.271	−.271	−.255	−.246	−.204	−.180	−.175	−.166	−.142	−.126	−.093	−.075
	.300	−.342	−.345	−.354	−.349	−.338	−.333	−.305	−.284	−.273	−.250	−.223	−.216	−.190	−.170
	.400	−.366	−.373	−.384	−.381	−.358	−.353	−.321	−.309	−.296	−.282	−.258	−.255	−.250	−.246
	.500	−.426	−.438	−.453	−.445	−.444	−.447	−.417	−.400	−.398	−.389	−.370	−.366	−.351	−.334
	.600	−.485	−.501	−.516	−.507	−.490	−.490	−.472	−.460	−.463	−.458	−.435	−.435	−.419	−.404
	.700	−.535	−.550	−.562	−.565	−.551	−.550	−.533	−.518	−.526	−.522	−.504	−.505	−.481	−.477
	.800	−.595	−.615	−.635	−.635	−.627	−.632	−.620	−.611	−.623	−.625	−.616	−.635	−.655	−.673
	.900	−.624	−.659	−.687	−.700	−.719	−.659	−.443	−.280	−.243	−.208	−.178	−.170	−.155	−.146
	.950	−.622	−.673	−.703	−.667	−.395	−.268	−.183	−.129	−.110	−.078	−.043	−.024	.017	.053
Lower surface	.0375	.337	.306	.260	.191	.110	.252	−.103	−.267	−.403	−.516	−.612	−.688	−.774	−.846
	.075	.293	.265	.225	.168	.104	.060	.002	−.086	−.247	−.402	−.505	−.590	−.674	−.739
	.150	.247	.228	.204	.172	.137	.066	.009	−.028	−.098	−.239	−.424	−.509	−.595	−.657
	.250	.171	.149	.117	.076	.033	.004	−.040	−.077	−.102	−.145	−.297	−.432	−.554	−.628
	.350	.152	.133	.102	.070	.033	.006	−.027	−.056	−.081	−.095	−.146	−.226	−.333	−.404
	.450	.086	.071	.044	.016	−.015	−.038	−.065	−.088	−.110	−.123	−.108	−.097	−.087	−.077
	.550	.054	.035	.010	−.018	−.045	−.066	−.088	−.108	−.130	−.145	−.124	−.105	−.060	−.037
	.650	.007	−.012	−.038	−.063	−.089	−.108	−.127	−.141	−.165	−.172	−.139	−.123	−.078	−.050
	.750	−.067	−.087	−.112	−.132	−.158	−.176	−.193	−.205	−.225	−.215	−.158	−.120	−.067	−.037
	.850	−.107	−.130	−.154	−.173	−.191	−.209	−.219	−.180	−.181	−.162	−.090	−.065	−.039	−.016
	.925	−.100	−.117	−.139	−.137	−.135	−.139	−.038	.089	.084	.078	.063	.054	.023	.030
	[a].975	−.070	−.072	−.087	.017	−.010	−.038	.205	.250	.263	.320	.228	.225	.086	.155
	[a]1.000	−.010	−.010	−.015	.250	.175	.250	.430	.400	.450	.525	.450	.390	.350	.285

[a]Faired value.

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.52)(05.77) PROPELLER BLADE SECTION (x = 0.90) — Concluded

(j) $M = 0.65$; $\beta_{0.75R} = 44.71°$.

J	2.071	2.099	2.111	2.131	2.175	2.201	2.230	2.278	2.312	2.342	2.389
M_x	1.147	1.135	1.132	1.124	1.105	1.094	1.080	1.066	1.054	1.045	1.026
α_x'	3.37	3.00	2.84	2.59	2.02	1.69	1.33	.73	.32	-.05	-.61
$\Delta\beta$	.58	.56	.55	.53	.50	.48	.46	.43	.40	.38	.35
α_1	1.25	1.21	1.13	1.08	1.01	.85	.70	.49	.34	.18	-.03
c_n	.3545	.3429	.3210	.3061	.2868	.2423	.1994	.1387	.0955	.0509	-.0074
c_m	-.1037	-.1008	-.1006	-.0952	-.0960	-.0945	-.0904	-.0850	-.0827	-.0787	-.0754
c_o	.0291	.0263	.0279	.0284	.0295	.0291	.0296	.0301	.0310	.0291	.0302

	a/b	Pressure coefficient, P										
Upper surface	0.000	1.372	1.364	1.361	1.355	1.342	1.335	1.326	1.317	1.309	1.303	1.291
	.025	.140	.079	.104	.111	.136	.169	.211	.237	.263	.286	.319
	.050	.092	.066	.074	.089	.090	.099	.123	.138	.154	.172	.197
	.100	.060	.042	.052	.064	.072	.086	.100	.101	.101	.104	.113
	.200	-.080	-.084	-.073	-.068	-.074	-.069	-.057	-.052	-.041	-.034	-.029
	.300	-.175	-.184	-.171	-.168	-.167	-.164	-.156	-.157	-.151	-.144	-.136
	.400	-.211	-.222	-.208	-.205	-.208	-.203	-.193	-.195	-.189	-.181	-.169
	.500	-.267	-.271	-.262	-.254	-.257	-.253	-.244	-.249	-.246	-.204	-.240
	a.600	-.325	-.328	-.320	-.310	-.322	-.320	-.315	-.325	-.318	-.286	-.310
	.700	-.387	-.399	-.390	-.390	-.402	-.395	-.390	-.408	-.401	-.397	-.394
	.800	-.460	-.473	-.466	-.465	-.476	-.475	-.473	-.485	-.488	-.489	-.493
	.900	-.515	-.528	a-.529	-.519	-.532	-.535	-.536	-.549	-.556	-.561	a-.580
	.950	-.534	-.562	-.561	-.563	-.580	-.584	-.585	-.600	-.619	-.636	-.669
Lower surface	.0375	.334	.297	.259	.232	.184	.102	-.035	-.151	-.225	-.285	-.369
	.075	.267	.238	.213	.194	.157	.128	.059	-.065	-.153	-.222	-.308
	.150	.278	.251	.235	.188	.153	a.120	.084	.005	-.066	-.123	-.211
	.250	.195	.169	.152	.168	.142	.093	a.058	-.033	-.089	-.154	-.239
	.350	.159	.140	.131	.115	.091	.056	.018	-.038	-.085	-.136	-.203
	.450	.111	.094	.085	.071	.047	.015	-.017	-.063	-.105	-.154	-.223
	.550	.071	.057	.047	.037	.013	-.018	-.049	-.097	-.130	-.178	-.251
	.650	.026	.012	.007	-.001	-.024	a-.055	a-.080	a-.129	a-.154	a-.195	a-.254
	.750	-.026	-.038	-.043	-.049	-.073	-.095	-.121	-.159	-.184	-.211	-.247
	a.850	-.067	-.090	-.085	-.100	-.114	-.130	-.156	-.195	-.216	-.214	-.235
	a.925	-.086	-.117	-.104	-.128	-.133	-.145	-.172	-.210	-.224	-.210	-.217
	a.975	-.084	-.120	-.103	-.130	-.133	-.142	-.168	-.203	-.224	-.198	-.194
	a1.000	-.050	-.095	-.078	-.100	-.107	-.120	-.142	-.175	-.200	-.167	-.160

a Faired value.

NACA

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 29.59°.

J	0.685	0.782	0.858	0.978	1.063	1.169	1.266	1.403	1.528	1.484	1.327	1.223	1.109	1.021	0.925	0.817	0.727
M_x	.476	.512	.514	.533	.529	.541	.553	.558	.573	.570	.554	.544	.538	.532	.519	.515	.512
α_x'	9.99	8.24	6.88	4.78	3.32	1.53	-.07	-2.26	-4.19	-3.52	-1.05	.63	2.53	4.03	5.70	7.61	9.23
$\Delta\beta$	.28	.28	.27	.26	.25	.23	.22	.20	.18	.18	.21	.23	.24	.25	.27	.28	.28
α_1	3.49	3.31	2.94	2.30	1.98	1.47	.91	.35	-.21	-.16	.18	.47	1.12	1.51	2.13	2.73	3.06
c_n	.7017	.6739	.6036	.4785	.4143	.3103	.1943	.0750	-.0467	-.0341	.0396	.0995	.2383	.3149	.4419	.5572	.6270
c_m	-.0300	-.0232	-.0237	-.0300	-.0335	-.0354	-.0341	-.0391	-.0408	-.0374	-.0308	-.0213	-.0212	-.0145	-.0038	.0090	.0097
c_o	-.0154	-.0175	-.0173	-.0182	-.0158	-.0104	-.0075	-.0032	.0009	.0007	.0020	.0019	-.0032	-.0095	-.0190	-.0246	-.0272

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.058	1.067	1.068	1.073	1.072	1.075	1.078	1.080	1.084	1.083	1.079	1.077	1.074	1.072	1.069	1.068	1.067
.025	-.879	-1.010	-1.136	-1.221	-1.128	-.731	-.408	-.099	.141	.144	.118	.036	-.326	-.827	1.282	-1.355	-1.369
.050	-1.029	-1.160	-1.249	-1.120	-.842	-.542	-.341	-.124	.061	.046	.018	-.103	-.312	-.510	1.137	-1.290	-1.305
.100	-1.059	-1.197	-1.219	-.623	-.508	-.386	-.237	-.082	.055	.013	-.097	-.235	-.388	-.477	.829	-1.221	-1.241
.200	-1.011	-.979	-.733	-.398	-.357	-.278	-.177	-.076	.010	.019	-.053	-.109	-.216	-.296	.351	-.757	-1.010
.300	-.827	a-.721	a-.511	a-.349	-.310	a-.261	a-.169	a-.100	a-.037	a-.007	-.054	a-.078	a-.143	a-.211	a-.306	-.476	a-.715
.400	-.554	-.497	a-.383	a-.322	a-.286	a-.251	a-.177	a-.189	a-.081	a-.078	a-.113	a-.138	-.227	a-.218	a-.303	-.362	a-.408
.500	-.410	-.313	-.297	-.286	-.266	-.243	-.196	-.158	-.121	-.132	-.171	-.195	-.206	-.291	-.301	-.298	-.289
a.600	-.287	-.245	-.244	-.246	-.245	-.235	-.201	-.175	-.141	-.161	a-.195	-.202	-.242	-.250	-.251	-.280	a-.252
.700	-.207	-.196	-.202	-.196	a-.219	a-.211	a-.189	a-.172	a-.149	a-.159	a-.187	-.169	-.187	-.210	-.221	-.244	-.225
.800	-.177	-.165	-.171	-.184	-.176	-.171	-.153	-.143	-.138	-.135	-.159	-.179	-.181	-.188	-.195	-.187	-.175
.900	-.129	-.115	-.113	-.108	-.102	-.098	-.086	-.084	-.090	-.093	-.092	-.107	-.115	-.114	-.122	-.117	-.113
.950	-.096	-.068	-.058	-.045	.037	-.029	-.020	-.022	-.028	-.013	-.035	-.039	-.056	-.066	-.080	-.093	-.104
Lower surface																	
.0375	.664	.619	.597	.446	.372	.210	.021	-.241	-.508	-.433	-.215	-.006	.217	.343	.432	.575	.626
.075	.508	.471	.426	.322	.269	.143	.013	-.150	-.337	-.288	-.130	-.004	.162	.253	.348	.434	.477
.150	.387	.336	.248	.213	.174	.091	.013	-.091	-.209	-.180	-.081	-.004	.096	.164	.232	.293	.289
a.250	.284	.242	.190	.154	.122	.051	.016	-.069	-.137	-.122	-.053	-.012	.058	.105	.163	.201	.207
.350	.199	.180	.159	.114	.092	.043	.005	-.047	-.106	-.093	-.043	-.004	.045	.082	.122	.163	.187
.450	.146	.133	.120	.081	.066	.033	a-.002	-.039	-.084	-.075	-.043	-.013	.028	.054	.087	.120	.139
.550	.098	.090	.078	a.030	.038	.006	-.014	-.041	-.074	-.083	-.114	-.136	.002	.032	.051	.075	.066
.650	.052	.054	.051	.032	.023	-.004	-.020	-.037	-.062	-.059	-.089	-.119	-.072	-.084	-.096	-.111	a-.032
.750	a.027	a.027	a.032	.054	a.016	a0	a-.007	a-.018	a-.035	a-.034	-.041	-.059	-.062	-.072	-.090	-.145	-.113
.850	.003	.022	.035	.050	.038	.038	.039	.027	.023	.012	.001	-.025	-.048	-.062	-.077	-.090	-.113
a.925	.035	.055	.082	.104	.106	.092	.092	.077	.066	.052	-.003	-.014	-.030	-.042	-.040	-.059	a-.145
a.975	.108	.130	.220	.210	.223	.158	.136	.137	.126	.116	.053	.052	.030	.060	.038	.015	-.015
a1.000	.207	.235	.399	.394	.399	.276	.202	.211	.197	.188	.116	.142	.102	.222	.157	.127	.096

a Faired value.

NACA

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 29.59°.

J	0.684	0.759	0.861	0.928	1.015	1.099	1.193	1.267	1.373	1.464	1.419	1.327	1.187	1.143	1.055	0.972	0.882	0.808	0.738	0.677
M_x	.600	.595	.615	.639	.635	.645	.657	.664	.666	.686	.679	.666	.649	.647	.641	.631	.619	.628	.610	.605
α_x'	10.01	8.65	6.83	5.65	4.13	2.71	1.13	-.08	-1.78	-3.21	-2.51	-1.05	1.23	1.96	3.45	4.88	6.46	7.77	9.03	10.14
$\Delta\beta$	.38	.40	.39	.38	.36	.34	.32	.30	.28	.25	.26	.29	.32	.33	.35	.37	.39	.40	.40	.38
α_1	3.68	3.49	3.19	2.89	2.57	1.78	1.39	.93	.41	-.04	.13	.45	.95	1.46	1.88	2.30	2.64	3.10	3.18	3.30
c_n	.7386	.7110	.6567	.5999	.5356	.3738	.2951	.1985	.0870	-.0094	.0275	.0973	.2004	.3071	.3918	.4796	.5423	.6326	.6311	.6613
c_m	-.0352	-.0212	-.0247	-.0359	-.0312	-.0351	-.0403	-.0454	-.0467	-.0498	-.0537	-.0438	-.0239	-.0409	-.0324	-.0205	-.0098	-.0057	-.0086	-.0167
c_o	-.0246	-.0293	-.0305	-.0286	-.0245	-.0114	-.0052	-.0041	-.0004	.0033	.0025	0	-.0041	-.0081	-.0163	-.0252	-.0293	-.0333	-.0249	-.0244
c/b	Pressure coefficient, P																			
Upper surface																				
0.000	1.092	1.091	1.097	1.106	1.104	1.108	1.112	1.115	1.116	1.124	1.121	1.116	1.110	1.109	1.107	1.103	1.099	1.102	1.096	1.095
.025	-1.118	-1.402	-1.573	-1.544	-1.543	-.776	-.451	-.202	.079	.291	.242	.051	-.303	-.458	-1.042	ᵃ-1.762	ᵃ-1.692	ᵃ-1.615	-1.279	1.186
.050	ᵃ-1.114	-1.356	-1.511	-1.483	-1.242	-.640	-.532	-.202	ᵃ.005	ᵃ.150	.110	-.051	-.298	ᵃ-.407	ᵃ-.721	ᵃ-1.180	ᵃ-1.493	ᵃ-1.525	-1.288	ᵃ-1.225
.100	ᵃ-1.106	-1.217	-1.235	-.979	-.655	-.449	-.322	-.206	-.068	.051	.009	-.098	-.279	ᵃ-.356	ᵃ-.493	ᵃ-.488	-1.082	ᵃ-1.259	ᵃ-1.187	ᵃ-1.125
.200	ᵃ-1.048	-.972	-.700	-.589	-.433	-.355	-.274	-.204	-.117	-.039	-.062	-.130	-.236	ᵃ-.300	-.367	ᵃ-.519	ᵃ-.589	ᵃ-.776	ᵃ-.944	ᵃ-.996
.300	-.885	-.693	-.469	-.408	-.376	-.333	-.275	-.222	-.161	-.071	-.122	-.164	-.251	ᵃ-.281	-.312	ᵃ-.419	-.389	-.571	-.709	-.863
.400	-.616	-.476	-.372	-.346	-.327	-.299	ᵃ-.274	-.216	-.169	-.126	-.137	-.171	-.236	ᵃ-.264	-.304	ᵃ-.386	ᵃ-.366	ᵃ-.393	-.497	-.624
.500	-.386	-.361	-.331	-.310	-.297	-.291	-.267	-.245	-.196	-.172	-.180	-.199	-.231	ᵃ-.258	-.267	ᵃ-.385	-.333	-.316	ᵃ-.345	ᵃ-.407
.600	-.279	-.289	-.296	-.294	-.289	-.282	-.255	-.240	-.215	-.194	-.199	-.216	ᵃ-.221	-.259	-.286	ᵃ-.385	-.333	-.266	ᵃ-.278	-.300
.700	-.218	-.247	-.263	-.263	-.263	-.258	-.235	-.222	-.203	-.197	-.205	-.218	ᵃ-.204	-.245	-.264	ᵃ-.345	ᵃ-.282	-.215	-.234	-.229
.800	-.164	-.183	-.189	-.185	-.184	-.190	-.172	-.167	-.163	-.160	-.159	-.162	-.175	ᵃ-.197	-.205	ᵃ-.260	-.208	ᵃ-.154	-.177	-.182
.900	-.111	-.112	-.106	-.103	-.097	-.103	-.092	-.090	-.091	-.095	-.092	-.093	-.121	ᵃ-.094	-.093	ᵃ-.176	ᵃ-.131	-.075	-.114	-.117
.950	-.063	-.058	-.037	-.025	-.017	-.015	.001	.002	-.004	-.006	-.005	-.007	ᵃ-.051	-.004	ᵃ-.002	ᵃ-.094	-.064	ᵃ.003	-.066	-.070
Lower surface																				
.0375	.668	.651	.584	.521	.450	.302	.166	-.001	-.242	-.406	-.323	-.178	.111	.225	.336	.387	.493	.634	.598	.604
.075	.516	.498	.443	.389	.328	.213	.114	.005	-.142	-.302	-.238	-.107	.078	ᵃ.166	.258	.289	.348	ᵃ.420	.369	.371
.150	.370	.354	.315	.269	.229	.132	.070	.005	-.093	-.191	-.153	-.066	.044	.098	ᵃ.160	.138	ᵃ.172	ᵃ.234	.203	.200
.250	.234	.244	.250	.227	.160	.091	.048	-.006	-.071	-.137	-.143	ᵃ-.045	.010	.064	ᵃ.077	ᵃ0	.157	.222	.181	.200
.350	.204	.208	.174	.149	.124	.071	.037	-.004	-.052	-.098	-.076	-.037	.019	.051	.065	-.012	ᵃ.087	ᵃ.202	.192	.200
.450	.152	.160	.137	.121	.097	.046	.020	-.009	-.045	-.079	-.066	ᵃ-.002	.034	.062	ᵃ.012	ᵃ.012	.054	ᵃ.120	.119	.088
.550	.099	.097	.083	.072	.054	.016	.001	-.026	-.050	-.074	-.081	ᵃ-.093	-.066	.007	.028	-.022	.019	ᵃ.070	.022	ᵃ.011
.650	.056	.056	.051	.053	.034	-.002	-.007	-.026	-.045	-.057	-.064	-.080	-.105	-.004	.018	-.102	ᵃ-.047	ᵃ0	ᵃ-.052	ᵃ-.046
.730	ᵃ.044	ᵃ.021	ᵃ.042	.063	.038	ᵃ.002	ᵃ0	-.026	-.045	ᵃ-.022	-.030	-.035	-.094	ᵃ-.003	-.042	ᵃ-.110	ᵃ-.074	ᵃ-.014	ᵃ-.056	ᵃ-.074
.850	ᵃ.055	ᵃ.018	ᵃ.076	.107	.072	.033	.043	.054	ᵃ.025	.021	-.019	.051	ᵃ-.051	.034	.009	-.072	ᵃ-.040	.015	ᵃ-.035	-.034
ᵃ.925	.109	.072	.129	.178	.145	.082	.107	.122	.094	.090	.130	.107	.020	.104	.098	.016	-.034	.083	.011	.002
ᵃ.975	.197	.129	.190	.282	.242	.161	.174	.207	.176	.175	.218	.195	.112	.191	.227	.109	.131	.181	.102	.131
ᵃ1.000	.295	.247	.285	.418	.383	.267	.265	.309	.282	.300	.340	.297	.234	.307	.412	.208	.263	.338	.216	.235

ᵃFaired value.

NACA

TABLE 10.– PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) – Continued

(o) N = 1600 rpm; $\beta_{0.75R}$ = 29.59°.

J	0.742	0.860	0.926	1.002	1.072	1.144	1.226	1.306	1.387	1.473	1.421	1.351	1.265	1.175	1.067	0.950	0.842
M_x	.718	.730	.745	.746	.761	.771	.781	.782	.801	.809	.792	.791	.784	.773	.763	.755	.729
$\alpha_x{}'$	8.96	6.84	5.68	4.36	3.16	1.95	.58	-.72	-1.97	-3.35	-2.54	-1.44	-.05	1.43	3.25	5.27	7.17
$\Delta\beta$	.50	.50	.49	.48	.47	.46	.44	.42	.41	.39	.40	.41	.43	.45	.47	.49	.50
α_1	3.75	3.86	3.76	2.59	2.12	1.70	1.16	.68	.39	-.19	-.02	.38	.64	1.39	2.16	2.67	3.37
c_n	.7615	.7999	.7861	.5416	.4458	.3594	.2476	.1477	.0834	-.0399	-.0052	.0810	.1358	.2944	.4540	.5566	.6941
c_m	-.0090	-.0138	-.0179	-.0121	-.0177	.0027	-.0341	-.0397	-.0456	-.0645	-.0594	-.0469	-.0381	-.0310	-.0143	-.0071	-.0048
c_o	-.0381	-.0411	-.0405	-.0318	-.0253	-.0168	-.0072	-.0037	-.0003	-.0005	.0002	.0004	-.0003	-.0053	-.0201	-.0265	-.0383

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.132	1.141	1.147	1.147	1.154	1.158	1.162	1.162	1.171	1.174	1.167	1.166	1.164	1.158	1.154	1.151	1.141
.025	-1.880	-1.838	-1.780	-1.748	-1.525	-.967	-.421	-.102	.081	.273	.317	.183	-.027	-.481	-1.135	-1.495	-1.761
.050	-1.836	-1.719	-1.581	-1.592	-1.209	-.745	-.371	-.131	.020	.170	.180	.017	-.127	-.434	-1.090	-1.420	-1.654
.100	-1.624	-1.507	-1.381	-1.201	-.744	-.451	-.299	-.160	a-.038	.077	.025	-.056	-.172	-.357	-.636	-1.197	-1.460
.200	a-.757	-1.115	-1.117	-.386	-.334	-.331	-.259	-.176	-.104	-.024	-.031	-.087	-.157	-.278	-.574	-.579	-1.230
.300	a-.571	a-.788	-.890	-.230	-.214	-.202	-.185	-.172	-.148	-.134	a-.080	-.121	a-.177	-.267	a-.543	a-.452	a-.848
.400	-.465	-.566	-.652	-.257	-.214	-.238	-.207	-.193	-.191	-.213	-.159	-.170	-.226	-.287	-.464	-.399	a-.376
.500	a-.384	-.419	-.449	-.308	-.288	-.298	-.254	-.239	-.243	-.250	-.206	-.224	-.258	-.296	-.370	-.362	-.339
.600	a-.306	-.313	-.320	-.326	-.314	-.301	-.280	-.267	-.240	-.222	-.237	-.251	-.268	-.287	-.308	-.325	-.323
.700	-.228	-.229	-.232	-.233	-.222	-.211	-.191	-.180	-.175	-.178	-.224	.233	-.242	-.251	-.271	-.287	-.288
.800	-.155	-.161	-.159	-.161	-.148	-.144	-.136	-.136	-.130	-.139	-.140	-.150	-.163	-.169	-.180	-.189	-.203
.900	-.118	-.112	-.109	-.101	-.088	-.085	-.081	-.085	-.083	-.094	-.089	-.093	-.092	-.088	-.098	-.111	-.128
.950	-.052	-.031	-.023	-.013	.002	.004	.008	.002	.004	-.007	.003	-.006	-.021	-.032	-.047	-.062	-.078
Lower surface																	
.0375	.677	.602	.533	.460	.370	.252	.095	-.110	-.324	-.980	-.832	a-.121	-.070	.186	.325	.457	a.475
.075	.529	.460	.412	.345	.274	.181	.077	-.061	-.145	-.822	-.196	-.154	-.032	.135	.248	.368	.423
.150	.381	.332	.293	.244	.191	.117	.055	-.035	-.108	-.131	-.154	-.105	-.022	.087	.147	.241	.236
.250	.278	.242	.213	.173	.135	.083	.028	-.035	-.076	-.123	-.112	-.079	-.023	.059	a.074	a.137	a.187
.350	.214	.188	.161	.132	.105	.066	.026	-.022	-.054	-.097	-.080	a-.072	-.049	.042	.026	.133	.178
.450	.159	.143	.121	.095	.077	.043	.012	-.024	-.045	-.080	-.066	-.076	-.094	.022	a0	.099	.092
.550	.106	.095	.083	.060	.043	.015	-.007	-.030	-.049	-.073	-.058	-.071	-.086	0	-.012	-.025	-.040
.650	.065	.065	.052	.038	.022	0	a-.011	-.034	-.042	-.058	-.053	-.059	-.070	a-.023	-.099	-.114	-.133
.750	a.041	a.051	a.041	a.029	a.021	a-.002	a0	a-.018	.002	-.013	a-.024	a.031	a.048	a-.032	a-.089	a-.125	a-.138
.850	.028	.044	.046	a.046	.041	.032	.029	.025	.032	.026	.027	.014	a.048	0	-.012	-.026	-.057
.925	.039	a.061	.070	.076	.073	.070	.074	.076	a.070	.081	.093	a.091	.065	a.023	.066	.056	.045
a.975	a.142	a.148	.155	.174	.165	.276	.158	.172	.139	.175	.195	.211	.129	.061	.181	.160	.162
a1.000	.357	.339	.366	.363	.319	.521	.290	.303	.256	.350	.351	.367	.197	.112	.340	.303	.286

a Faired value.

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) — Continued

(d) N = 2000 rpm; $\beta_{0.75R}$ = 29.59°.

J	0.994	1.154	1.240	1.346	1.426	1.341	1.265	1.203	1.121	1.037
M_x	.949	.959	.979	.983	1.004	.978	.980	.973	.957	.949
α_x'	4.50	1.78	.36	-1.36	-2.62	-1.27	-.05	.97	2.33	3.76
$\Delta\beta$	.76	.69	.63	.58	.55	.59	.62	.65	.71	.75
α_1	3.03	1.85	1.06	.28	-.63	-.03	.55	.99	1.83	2.23
c_n	.6325	.3909	.2259	.0593	-.1336	-.0061	.1169	.2106	.3853	.4650
p_m	-.0957	-.0818	-.0745	-.0831	-.0523	-.0690	-.0645	-.0576	-.0512	-.0553
c_c	-.0025	.0077	.0116	.0154	.0229	.0165	.0122	.0129	.0067	.0016

c/b	Pressure coefficient, P									
Upper surface										
0.000	1.245	1.251	1.262	1.264	1.277	1.292	1.263	1.259	1.250	1.245
.025	-.663	-.212	.078	.272	.402	.299	.153	.003	-.330	-.508
.050	-.599	-.229	-.016	.151	.268	.181	.057	-.079	-.316	-.470
.100	-.533	-.249	-.075	.039	a.186	.067	-.037	-.100	-.306	-.428
.200	-.572	-.313	-.166	-.040	.047	-.011	-.104	-.193	-.356	-.468
a.300	-.580	-.357	-.235	-.116	.048	-.091	-.174	-.256	-.398	-.503
.400	-.580	-.389	-.281	-.196	-.116	-.161	-.232	-.294	-.405	-.506
.500	-.570	-.404	-.306	-.229	-.163	-.204	-.269	-.323	-.421	-.501
.600	-.592	-.461	-.380	-.319	-.258	-.299	-.351	-.395	-.478	-.539
.700	-.591	-.488	-.420	-.372	-.314	-.353	-.393	-.432	-.500	-.556
.800	-.620	-.537	-.479	-.447	-.410	-.427	-.455	-.487	-.545	-.599
.900	-.276	-.534	-.543	-.527	-.482	-.512	-.533	-.552	-.486	-.345
.950	-.188	-.169	-.224	-.405	-.442	-.412	-.259	-.180	-.180	-.194
Lower surface										
.0375	.458	.219	.006	-.283	-.408	-.344	-.306	.067	.269	.360
.075	.368	.194	.024	-.240	-.386	-.297	-.061	.071	.215	.298
.150	.271	.135	.007	-.246	-.367	-.298	-.068	.042	.156	.211
.250	.206	.094	.010	-.229	-.354	-.286	-.049	.008	.108	.101
.350	.164	.070	.009	-.111	-.321	-.138	-.032	.004	.075	.115
.450	.111	.033	-.018	-.049	-.287	-.084	-.055	-.063	.033	.039
.550	.047	-.023	-.066	-.077	-.283	-.091	-.093	-.103	-.035	-.046
.650	-.010	-.066	-.101	-.102	-.281	-.161	-.173	-.183	-.195	-.212
.750	a-.061	a-.124	a-.149	a-.138	a-.327	-.230	-.244	-.256	-.268	a-.289
.850	-.090	-.150	-.178	-.183	-.231	-.239	-.252	-.264	-.278	-.296
.925	-.080	-.129	-.156	-.164	-.149	-.165	-.177	-.189	-.201	-.202
a.975	-.037	-.038	-.052	-.064	.040	-.019	-.046	-.064	-.072	-.031
a1.000	.052	.181	.179	.177	.075	.200	.202	.153	.076	.207

a Faired value.

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) — Continued

(e) N = 2160 rpm; $\beta_{0.75R}$ = 29.59°.

J	1.094	1.141	1.207	1.279	1.320	1.381	1.410	1.357	1.284	1.247	1.183	1.114
M_I	1.025	1.051	1.053	1.044	1.065	1.071	1.072	1.064	1.051	1.050	1.044	1.025
α_x'	2.79	2.00	.90	-.28	-.94	-1.91	-2.37	-1.53	-.36	.24	1.30	2.45
$\Delta\beta$	.80	.78	.75	.71	.70	.67	.65	.68	.71	.73	.76	.79
α_1	1.93	1.57	1.11	.65	.29	-.25	-.51	-.28	.22	.44	.79	1.40
c_n	.4058	.3332	.2374	.1396	.0629	-.0548	-.1081	-.0597	.0469	.0950	.1646	.2933
c_m	-.0896	-.0884	-.0863	-.0859	-.0806	-.0601	-.0493	-.0559	-.0666	-.0669	-.0539	-.0735
c_c	.0144	.0167	.0189	.0187	.0181	.0205	.0211	.0218	.0196	.0194	.0228	.0220

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.290	1.307	1.308	1.303	1.315	1.320	1.321	1.315	1.307	1.307	1.303	1.290
.025	-.141	-.007	.120	.245	.320	.401	.436	.377	.288	.230	a.250	a.133
.050	a.144	a.020	a.068	a.177	a.224	.281	.330	a.256	.193	.184	+.123	-.008
.100	-.154	-.066	.010	.086	.130	.187	.225	.179	.114	a.106	.002	-.109
.200	-.215	-.155	-.107	-.035	.026	.086	.108	.081	.014	-.034	-.097	-.187
.300	-.290	-.222	-.195	-.135	-.081	-.032	-.013	-.043	-.097	-.137	-.189	-.264
.400	-.299	-.243	-.225	-.169	-.117	-.070	-.049	-.080	-.130	-.167	-.218	-.287
.500	-.315	-.267	-.259	-.217	-.166	-.144	-.128	-.137	-.169	-.197	-.240	-.302
.600	a.358	-.329	a.300	-.287	-.224	-.198	-.187	-.210	-.256	a.260	-.319	-.348
.700	-.399	-.357	-.357	-.344	-.291	-.254	-.243	-.264	-.303	-.329	-.358	a.408
.800	-.436	-.399	-.405	a.405	-.360	-.338	-.328	-.348	-.361	-.394	-.408	-.451
.900	-.476	-.464	-.476	-.467	-.441	-.422	-.417	-.421	-.440	-.459	-.481	-.518
.950	-.463	-.472	-.490	-.491	-.469	-.453	-.450	-.462	-.477	-.485	-.498	-.535
Lower surface												
.0375	.325	.259	.114	-.044	-.126	-.206	-.249	-.207	-.113	-.030	.116	.253
.075	.282	.235	.118	-.023	-.095	-.185	-.231	-.186	-.097	-.025	.105	.207
.150	.220	.181	.070	-.043	-.115	-.184	-.226	-.187	-.111	-.035	.065	.149
.250	.166	.142	.053	-.015	-.114	-.195	-.238	-.231	-.087	-.087	.024	.092
.350	.149	.135	.061	.008	-.075	-.167	-.216	-.172	-.055	-.020	.044	.074
.450	.108	.101	.041	-.008	-.029	-.145	-.197	-.150	-.049	-.038	.010	a.053
.550	.045	.045	-.007	-.049	-.046	-.156	-.203	-.153	-.080	-.065	-.029	-.028
.650	.001	.006	-.044	-.083	-.077	-.169	-.216	-.145	-.135	-.141	-.152	-.165
.750	a.048	a.047	a.095	a.141	a.116	a.182	a.229	-.191	-.203	-.210	-.220	-.235
.850	-.084	-.080	-.124	-.155	-.136	-.190	-.237	-.198	-.210	-.218	-.228	-.243
.925	-.091	-.085	-.124	-.125	-.113	-.106	-.158	-.168	-.148	-.155	-.166	-.180
a.975	-.077	-.077	-.100	-.005	.032	0	.017	-.125	-.042	-.088	-.041	-.041
a1.000	-.041	-.041	-.051	.202	.252	.250	.225	-.060	.151	0	.204	.205

a Faired value.

NACA

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) — Continued

(f) N = 1140 rpm; $\beta_{0.75R}$ = 44.96°.

J	1.618	1.850	1.977	2.113	2.240	2.375	2.505	2.632	2.564	2.424	2.302	2.172	2.034	1.917	1.795	1.700
M_r	.586	.605	.620	.633	.645	.661	.673	.688	.677	.662	.647	.635	.619	.610	.602	.587
α_r'	9.83	6.49	4.78	2.98	1.40	-.21	-1.73	-3.12	-2.38	-.79	.65	2.24	4.01	5.58	7.27	8.62
$\Delta\beta$	.26	.25	.23	.21	.19	.17	.15	.13	.14	.17	.18	.20	.22	.24	.25	.26
α_1	2.91	2.44	2.12	1.71	1.07	.49	.15	-.23	-.01	.29	.71	1.24	1.92	2.32	2.57	2.87
c_n	.6532	.5442	.4752	.3860	.2410	.1115	.0338	-.0523	-.0026	.0653	.1587	.2798	.4311	.5197	.5758	.6403
c_m	-.0282	-.0267	-.0351	-.0248	-.0251	-.0345	-.0401	-.0447	-.0497	-.0372	-.0259	-.0215	-.0461	-.0223	-.0050	-.0282
c_c	-.0173	-.0109	-.0094	-.0151	-.0049	.0012	.0029	.0028	.0034	.0017	-.0039	-.0065	-.0205	-.0195	-.0229	-.0161

x/b	Pressure coefficient, P															
Upper surface																
0.000	1.088	1.094	1.099	1.104	1.108	1.114	1.118	1.124	1.120	1.114	1.109	1.103	1.099	1.096	1.093	1.089
.025	-.926	-.929	-.962	-.899	[a]-.324	[a].015	[a].215	[a].300	.274	.062	-.184	-.477	-1.027	-1.284	-1.318	[a]-1.100
.050	-1.034	-1.051	-.992	-.744	[a]-.330	-.122	.033	.181	.131	-.028	-.203	-.412	-.620	-1.290	-1.382	[a]-.835
.100	-1.008	-1.047	-.748	-.573	[a]-.330	-.175	-.061	.053	.012	-.107	[a]-.210	[a]-.354	-.490	-.866	-1.157	-1.134
.200	[a]-.867	-.711	[a]-.539	[a]-.436	[a]-.310	[a]-.200	[a]-.140	[a].077	[a].082	-.138	-.208	-.310	-.360	-.467	-.710	-.896
.300	-.691	[a]-.496	[a]-.414	-.350	-.279	-.211	-.166	-.107	-.124	-.164	-.226	-.296	-.324	-.406	-.453	-.610
.400	[a]-.510	-.350	-.327	-.284	-.248	-.197	-.164	-.122	-.142	-.180	-.224	-.282	-.288	-.359	-.365	-.426
.500	-.367	-.318	-.301	-.269	-.245	-.203	-.183	-.151	-.169	-.194	-.227	-.273	-.270	-.330	-.325	-.338
.600	-.278	-.303	-.293	-.273	-.255	-.230	-.219	-.195	-.211	-.226	-.247	-.284	-.266	-.319	-.307	-.294
.700	-.222	-.259	-.254	-.240	-.232	-.212	-.209	-.194	-.205	-.212	-.254	-.272	-.227	-.272	-.263	-.246
.800	-.168	-.197	-.191	-.183	-.180	-.169	-.170	-.164	-.172	-.173	-.177	-.197	-.168	-.205	-.200	-.185
.900	-.111	-.115	-.106	-.101	-.102	-.099	-.107	-.107	-.112	-.105	-.104	-.113	-.075	-.117	-.118	-.108
.950	-.071	-.043	-.032	-.022	-.024	-.022	-.029	-.032	-.036	-.029	-.026	-.029	.005	-.041	-.051	-.053
Lower surface																
.0375	.644	.532	.424	.281	.106	-.120	-.296	-.419	-.392	-.218	-.008	.198	.391	.508	.586	.645
.075	.497	.396	.306	.196	.068	-.083	-.209	-.350	-.292	-.139	-.010	.131	.281	.369	.437	.493
.150	.354	.272	.204	.126	.039	-.055	-.134	-.220	-.187	-.088	-.008	.078	.187	.251	.303	.344
.250	.256	.190	.137	.078	.016	-.048	-.107	-.166	-.143	-.076	-.021	.043	.128	.172	.214	.247
.350	.195	.143	.103	.057	.010	-.036	-.078	-.120	-.106	-.055	-.019	.029	.099	.128	.159	.188
.450	.146	.103	.073	.035	-.005	-.039	-.072	-.101	-.092	-.055	-.026	[a].019	.072	.070	.048	.142
.550	.093	.063	.035	.008	-.024	-.050	-.072	-.092	-.086	-.105	-.042	-.020	.032	.001	-.021	.085
.650	.066	.044	.026	.006	-.018	-.034	-.052	-.065	-.086	-.119	-.078	-.063	.028	-.002	-.026	.061
.750	[a].043	[a].023	[a].030	-.005	-.023	-.030	-.042	-.046	-.056	-.101	-.058	[a]-.094	.019	-.019	-.042	.030
.850	[a].024	[a].010	[a].051	[a].005	[a]-.027	[a]-.029	[a]-.024	[a]-.020	.016	-.018	-.052	-.085	.039	[a]-.002	[a]-.041	.031
.925	[a].031	[a].010	[a].079	[a].042	[a]-.020	[a]-.019	[a].009	[a].020	[a].087	[a].075	[a]-.025	[a]-.019	.204	[a].066	[a].004	.060
.975	.087	.033	.122	.103	.007	.010	.054	.070	.157	.161	.044	.107	.577	.216	.084	.103
[a]1.000	.235	.101	.202	.201	.351	.301	.300	.325	.315	.276	.336	.302	1.008	.648	.223	.173

[a] Faired value.

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) — Continued

(g) N = 1350 rpm; $\beta_{0.75R} = 44.96°$.

J	1.545	1.652	1.762	1.866	1.978	2.071	2.170	2.290	2.403	2.528	2.475	2.360	2.248	2.141	2.029	1.926	1.806	1.720	1.611
M_x	.690	.697	.708	.721	.733	.746	.756	.770	.789	.802	.794	.781	.760	.746	.732	.727	.714	.705	.691
$\alpha_r°$	10.92	9.33	7.74	6.27	4.76	3.53	2.26	.79	-.55	-1.97	-1.38	-.04	1.31	2.64	4.08	5.46	7.12	8.33	9.94
$\Delta\beta$	.38	.37	.35	.34	.32	.31	.28	.25	.22	.19	.20	.23	.27	.29	.32	.33	.35	.36	.37
α_i	3.71	3.40	3.01	2.65	2.37	1.96	1.54	1.06	.68	.22	.32	.69	1.18	1.54	2.04	2.42	2.89	3.09	3.59
c_n	.8272	.7574	.6784	.5951	.5323	.4409	.3482	.2381	.1556	.0498	.0736	.1556	.2675	.3465	.4579	.5448	.6466	.6918	.8003
c_m	-.0461	-.0292	-.0275	-.0375	-.0339	-.0386	-.0410	-.0483	-.0559	-.0721	-.0723	-.0659	-.0506	-.0434	-.0310	-.0250	-.0204	-.0093	-.0137
c_o	-.0260	-.0306	-.0232	-.0168	-.0189	-.0135	-.0126	-.0073	-.0086	-.0072	.0021	-.0006	-.0071	-.0066	-.0195	-.0260	-.0279	-.0315	-.0335

	c/b								Pressure coefficient, P										
Upper surface	0.000	1.125	1.128	1.132	1.137	1.142	1.148	1.152	1.157	1.166	1.171	1.167	1.162	1.153	1.148	1.142	1.140	1.135	1.131	1.126
	a.025	-1.191	-1.344	-1.169	-.933	-1.025	-1.130	-.686	-.404	-.275	-.069	.368	.175	-.233	-.407	-1.233	-1.406	-1.482	-1.526	-1.616
	.050	-1.189	-1.334	-1.438	-1.420	-1.367	-1.316	-.646	-.418	-.240	-.072	.061	-.098	-.299	-.444	-1.088	-1.322	-1.499	-1.564	-1.649
	.100	-1.160	-1.252	-1.434	-1.415	-1.325	-.522	-.434	-.286	-.158	-.037	-.045	-.164	-.312	-.438	-.473	-1.189	-1.394	-1.496	-1.578
	.200	-1.102	-1.039	-.820	-.491	-.374	-.988	-.325	-.239	-.155	-.084	-.111	-.181	-.277	-.352	-.398	-.371	-.658	-.855	-1.167
	.300	-.929	-.764	-.504	-.423	-.390	-.370	-.320	-.263	-.208	-.153	-.171	-.223	-.287	-.339	-.386	-.383	-.387	-.544	-.840
	.400	-.746	-.557	-.378	-.360	-.353	-.334	-.296	-.257	-.219	-.180	-.192	-.229	-.276	-.313	-.350	-.355	-.356	-.407	-.623
	.500	-.553	-.415	-.346	-.342	-.330	-.315	-.287	-.259	-.232	-.210	-.215	-.240	-.272	-.300	-.331	-.336	-.340	-.347	-.460
	.600	-.403	-.327	-.331	-.337	-.325	-.317	-.298	-.278	-.268	-.261	-.262	-.272	-.291	-.309	-.331	-.331	-.332	-.320	-.351
	.700	-.304	-.264	-.292	-.310	-.287	-.280	-.271	-.259	-.253	-.258	-.255	-.257	-.268	-.279	-.295	-.293	-.294	-.280	-.279
	.800	-.224	-.192	-.214	-.214	-.205	-.201	-.194	-.188	-.187	-.196	-.188	-.189	-.196	-.201	-.213	-.211	-.214	-.203	-.208
	.900	-.164	-.128	-.122	-.119	-.107	-.105	-.102	-.097	-.100	-.109	-.105	-.101	-.104	-.109	-.116	-.116	-.119	-.117	-.149
	.950	-.124	-.084	-.046	-.037	-.023	-.019	-.020	-.013	-.012	-.021	-.018	-.013	-.016	-.021	-.030	-.031	-.038	-.049	-.110
Lower surface	.0375	.707	.674	.618	.538	.440	.344	.193	.008	-.185	-.807	-.343	-.118	.091	.245	.383	.483	.588	.612	.669
	.075	.554	.521	a.468	.404	.324	.247	.136	.012	-.125	-.242	-.219	-.073	.036	a.142	.265	.356	a.427	.490	.537
	.150	.406	.379	.339	.289	.232	.173	.094	.005	-.081	-.167	-.142	-.048	a.015	a.110	.190	.252	.319	.350	a.389
	.250	.298	.276	.246	.203	.157	.111	.048	-.014	-.074	-.138	-.113	-.053	.010	.065	.131	.164	a.225	.232	a.278
	.350	.228	.211	.190	.156	.118	.082	.032	-.014	-.057	-.106	-.088	-.042	.003	.042	.090	.133	.181	.197	.216
	.450	.168	.160	.146	.117	.091	.052	.016	-.021	-.054	-.090	-.078	-.045	a.018	.019	.057	.095	.136	.151	.132
	.550	.103	.103	.096	.070	.044	.023	-.011	-.039	-.062	-.089	-.073	-.055	a.037	a.009	.018	.054	.078	.063	-.040
	.650	.066	.071	.068	.051	.029	.010	-.011	-.034	-.050	-.069	-.078	-.049	a.052	a.019	a.020	a.027	.025	.001	a.024
	.750	.022	.036	.041	.032	.017	.007	-.013	-.026	-.032	-.046	-.041	-.033	-.061	a.015	-.027	.015	-.005	-.021	-.048
	.850	-.006	.018	.036	.034	.028	.020	.012	.008	.005	.003	-.004	-.030	-.059	a.030	a.010	.028	.001	-.013	-.038
	a.925	.045	.068	.081	.103	.115	.116	.116	.136	.157	.179	.173	.152	.130	.107	.085	.068	.046	.031	.007
	a.975	.174	.192	.186	.252	.294	.293	.293	.321	.361	.470	.530	.522	.506	.211	.222	.170	.132	.136	.115
	a1.000	.410	.378	.356	.477	.657	.605	.478	.482	.676	.850	1.100	1.002	1.004	.382	.454	.354	.609	.326	.307

a Faired value.

TABLE 10.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) - Continued

(h) N = 1600 rpm; $\beta_{0.75R}$ = 44.96°.

J	2.210	2.323	2.417	2.521	2.468	2.375	2.268	2.114	2.191	2.092	2.050	2.001	1.967
M_x	.899	.916	.929	.942	.934	.921	.904	.882	.893	.879	.874	.866	.860
α_x'	1.77	.39	-.71	-1.90	-1.30	-.22	1.06	2.98	2.01	3.26	3.81	4.45	4.90
$\Delta\beta$	.38	.33	.29	.24	.26	.30	.35	.43	.39	.44	.46	.48	.50
α_1	1.50	.98	.28	-.48	-.19	.50	1.22	2.01	1.71	2.03	2.36	2.59	2.87
c_n	.3391	.2213	.0632	-.1092	-.0435	.1126	.2743	.4527	.3865	.4563	.5301	.5831	.6462
c_m	-.0722	-.0713	-.0785	-.0728	-.0841	-.0727	-.0666	-.0492	-.0538	-.0444	-.0397	-.0397	-.0424
c_c	.0021	.0040	.0087	.0097	.0097	.0043	-.0012	-.0087	-.0066	-.0099	-.0146	-.0166	-.0205

c/b						Pressure coefficient, P							
Upper surface													
0.000	1.218	1.227	1.234	1.242	1.237	1.230	1.221	1.209	1.215	1.208	1.205	1.201	1.198
[a].025	-.188	-.050	.240	.325	.435	.115	-.160	-.465	-.346	-.504	-.631	-.710	-.789
[a].050	-.236	-.111	.070	.173	.233	-.006	-.189	-.488	-.363	-.517	-.644	-.722	-.810
.100	-.289	-.165	-.029	.081	.039	-.074	-.225	-.516	-.379	-.538	-.661	-.735	-.825
.200	-.355	-.213	-.114	-.020	-.084	-.142	-.272	-.531	-.413	-.556	-.674	-.743	-.826
.300	-.402	-.299	-.204	-.129	-.156	-.230	-.334	-.522	-.505	-.555	-.665	-.732	-.812
.400	-.399	-.312	-.238	-.166	-.196	-.254	-.349	-.474	-.446	-.497	-.619	-.692	-.773
.500	-.407	-.329	-.273	-.217	-.239	-.286	-.368	-.448	-.439	-.456	-.532	-.618	-.700
.600	-.470	-.411	-.365	-.324	-.342	-.378	-.431	-.505	-.495	-.513	-.540	-.577	-.664
.700	-.508	-.462	-.418	-.388	-.404	-.436	-.476	-.503	-.527	-.505	-.270	-.228	-.232
.800	-.485	-.508	-.479	-.458	-.473	-.499	-.516	-.173	-.216	-.156	-.170	-.159	-.151
.900	-.026	-.069	-.200	-.424	-.301	-.136	-.036	-.050	-.031	-.053	-.067	-.064	-.063
.950	.050	.039	.006	-.047	-.025	.024	.051	.036	.046	.034	.025	.022	.016
Lower surface													
.0375	.111	-.100	-.437	-.543	-.522	-.364	.003	.273	.182	.282	.352	.401	.449
.075	[a].106	-.060	-.388	-.498	-.475	-.283	.006	.203	.139	.210	.264	.286	.343
.150	.068	-.025	-.328	-.465	-.448	-.137	.006	.131	.088	.137	.176	.207	.238
.250	.015	-.051	-.177	-.446	-.458	-.146	-.028	.080	.045	.085	.116	[a].141	[a].163
.350	-.005	-.054	[a]-.076	-.403	-.333	-.136	-.040	.045	.017	.048	.077	.099	.119
.450	-.017	-.059	-.067	-.345	-.180	-.103	-.048	.027	0	-.008	.052	.072	.088
.550	-.057	-.091	-.121	-.318	-.080	-.120	-.088	-.011	-.039	[a]-.030	[a].014	.023	.038
.650	-.079	-.115	-.145	-.217	-.113	-.137	-.099	-.037	-.059	-.037	[a]-.030	-.019	-.022
.750	-.070	-.100	-.139	-.077	-.107	-.115	-.082	-.046	-.051	-.051	[a]-.035	-.024	-.034
.850	[a]-.020	[a]-.041	[a]-.084	.047	.031	.007	-.017	-.050	-.030	-.047	-.059	-.068	-.077
.925	.039	.028	.016	.011	.001	[a].006	.005	.011	.031	[a].015	.004	-.004	-.015
[a].975	.111	.161	.110	.045	.037	.059	.085	.176	.204	.194	.187	.177	.164
[a]1.000	.226	.351	.381	.550	.375	.326	.326	.378	.423	.378	.354	.354	.329

[a]Faired value.

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) — Continued

(1) M = 0.56; $\beta_{0.75R}$ = 44.96°.

J	2.058	2.072	2.107	2.135	2.160	2.183	2.211	2.242	2.267	2.298	2.328	2.362	2.388	2.419	2.453	2.485	2.517	2.553	2.588
M_T	.983	.978	.967	.959	.952	.942	.934	.929	.923	.915	.907	.896	.890	.883	.876	.872	.862	.856	.852
α_T'	3.70	3.51	3.06	2.71	2.40	2.10	1.76	1.37	1.08	.70	.33	−.06	−.37	−.73	−1.12	−1.49	−1.85	−2.25	−2.65
$\Delta\beta$	.49	.48	.47	.45	.44	.43	.41	.40	.38	.36	.34	.32	.30	.28	.26	.24	.22	.19	.16
α_1	2.12	2.08	1.97	1.85	1.65	1.54	1.34	1.28	1.13	1.03	.92	.81	.70	.50	.38	.23	.01	−.22	−.47
c_n	.4769	.4679	.4441	.4170	.3735	.3477	.3026	.2891	.2543	.2314	.2085	.1843	.1595	.1136	.0855	.0535	.0013	−.0496	−.1070
c_m	−.0970	−.0953	−.0889	−.0850	−.0689	−.0638	−.0572	−.0558	−.0557	−.0568	−.0593	−.0604	−.0588	−.0628	−.0571	−.0505	−.0563	−.0556	−.0530
c_c	.0091	.0090	.0073	.0071	.0051	.0041	.0022	.0020	.0024	.0025	.0035	.0038	.0028	.0025	.0020	.0011	.0035	.0051	.0051

x/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.264	1.262	1.256	1.251	1.247	1.241	1.237	1.234	1.231	1.227	1.223	1.217	1.214	1.210	1.207	1.204	1.199	1.197	1.194
a.025	−325	−338	−336	−294	−248	−249	−202	−187	−125	−073	−035	.015	.055	.100	.154	.168	.255	−575	.670
.050	−391	−341	−324	−292	−257	−248	−204	−192	−146	−122	−092	−058	−032	.014	.048	.079	.116	.152	.184
.100	−331	−335	−313	−290	−275	−262	−218	−205	−192	−183	−171	−148	−135	−096	−071	−047	−017	.011	.037
.200	−303	−300	−307	−313	−322	−331	−336	−342	−317	−300	−280	−260	−253	−230	−217	−198	−152	−111	−087
a.300	−341	−339	−348	−349	−352	−359	−349	−350	−329	−318	−298	−275	−276	−251	−231	−215	−172	−169	−149
.400	−397	−402	−394	−384	−380	−381	−361	−355	−338	−332	−316	−297	−286	−262	−252	−234	−218	−198	−182
a.500	−428	−434	−430	−420	−421	−417	−399	−392	−380	−367	−361	−343	−322	−303	−300	−294	−280	−269	−246
.600	−452	−454	−454	−453	−449	−451	−442	−440	−430	−421	−412	−401	−399	−383	−382	−371	−358	−334	−307
.700	−474	−478	−480	−481	−482	−485	−478	−479	−469	−466	−462	−451	−449	−431	−421	−392	−356	−324	−303
.800	−515	−520	−526	−531	−533	−536	−531	−534	−528	−528	−523	−483	−406	−267	−239	−236	−240	−237	−231
.900	−573	−589	−598	−590	−455	−340	−235	−144	−108	−074	−056	−047	−057	−067	−084	−096	a−110	−118	−123
.950	−514	−471	−356	−229	−137	−101	−063	−022	.006	.030	.029	.018	.002	−011	−024	−013	a.042	−007	−013
Lower surface																			
.0375	.333	.309	.280	.242	.202	.170	.104	.081	.012	−038	−095	−163	−247	−383	−496	−596	−694	−777	−864
.075	.265	.247	.224	.191	.160	.135	.087	.067	.016	−020	−059	−094	−135	−242	−360	−473	−580	−673	−766
.150	.196	.180	.164	.138	.113	.093	.056	.042	.005	−019	−046	−065	−079	−090	−103	−134	−246	−383	−537
.250	.136	.130	.117	.096	.077	.059	.028	.017	−007	−025	−043	−055	−070	−082	−091	−093	−109	−124	−137
.350	.109	.099	.087	.069	.053	.039	.012	0	−015	−027	−040	−049	−061	−067	−077	−081	−096	−108	−123
.450	.066	.055	.044	.029	.012	0	−019	−028	−043	−052	−063	−065	−073	−073	−081	−083	−084	−094	−107
.550	.011	.002	−009	−023	−037	−049	−065	−071	−082	−100	−115	−125	−143	−157	−123	−088	−084	−092	−105
.650	−038	−048	−060	−073	−086	−100	−112	−112	−128	−144	−160	−116	−102	−098	−111	−100	−087	−087	−101
.750	−085	−097	−110	−122	−137	−151	−166	−179	−139	−118	−132	−083	−064	−058	−067	−081	−094	a−089	a−102
.850	−135	−146	−157	−172	−186	−201	−175	a−156	a−126	a−089	a−079	−066	a−058	a−048	a−057	−074	a−101	−098	−111
.925	−084	−095	−107	−119	−134	−148	−147	−125	−117	−080	−067	−060	−049	−050	−063	−076	−093	−106	−120
a.975	.086	.076	.070	.057	.045	.030	−057	−048	−057	−039	−030	−030	−025	−010	−025	−060	−029	−018	−015
a1.000	.255	.265	.250	.245	.315	.190	.250	.275	.235	.170	.160	.125	.125	.100	.275	.300	.140	.400	.450

a Faired value.

TABLE 10.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-(2.03)(04.76) PROPELLER BLADE SECTION (x = 0.95) - Concluded

(j) $M = 0.65$; $\beta_{0.75R} = 45°$.

	J	2.041	2.112	2.147	2.216	2.250	2.285	2.324	2.359	2.430
	M_x	1.165	1.136	1.123	1.100	1.084	1.079	1.063	1.045	1.026
	$\alpha_x{}'$	3.92	3.00	2.56	1.70	1.27	.85	.38	-.03	-.86
	$\Delta\beta$	.61	.56	.53	.48	.45	.43	.40	.37	.32
	α_1	1.81	1.38	1.25	.91	.70	.49	.32	.10	-.09
	c_n	.4079	.3106	.2831	.2037	.1579	.1109	.0725	.0222	-.0215
	c_m	-.1027	-.0732	-.0722	-.0762	-.0660	-.0649	-.0621	-.0581	-.0475
	c_c	.0179	.0167	.0168	.0199	.0211	.0207	.0201	.0218	.0205
	c/b	Pressure coefficient, P								
Upper surface	0.000	1.385	1.364	1.354	1.339	1.329	1.325	1.315	1.303	1.291
	a.025	.220	.085	.097	.172	.240	.320	.310	.525	.320
	a.050	.056	.043	.060	.120	.140	.133	.122	.185	.110
	.100	-.003	-.004	.019	.062	.076	.076	.072	.128	.075
	.200	-.062	-.094	-.074	-.050	-.038	-.030	-.018	.054	.003
	.300	-.116	-.176	-.183	-.185	-.169	-.135	-.133	-.067	-.129
	.400	-.147	-.180	-.169	-.163	-.153	-.147	-.143	-.079	-.141
	.500	-.167	-.200	-.194	-.182	-.186	-.184	-.182	-.123	-.185
	.600	-.210	-.255	-.253	-.256	-.255	-.259	-.258	-.201	-.269
	.700	-.250	-.294	-.294	-.304	a-.310	-.311	-.315	-.260	-.333
	.800	-.279	-.327	-.331	-.348	-.355	-.360	-.366	-.317	-.393
	.900	-.330	-.388	-.398	-.418	-.426	-.434	-.444	-.399	-.479
	.950	-.263	-.345	-.353	-.373	-.382	-.391	-.402	-.357	-.437
Lower surface	.0375	.424	.351	.286	.157	.087	.009	-.063	-.077	-.223
	.075	.378	.313	.261	a.140	.074	.007	-.054	-.059	-.199
	.150	.256	.217	.200	.104	.046	-.015	-.071	-.069	-.203
	.250	.248	.197	.167	.083	.039	-.020	-.073	-.071	-.201
	.350	.222	.172	.147	.077	.041	-.007	-.054	-.046	-.173
	.450	.180	.125	.105	.045	.019	-.018	-.057	-.045	-.168
	.550	.136	.082	.065	.018	-.009	-.038	-.071	-.055	-.175
	.650	.080	.027	.011	-.035	-.063	-.084	-.113	-.092	-.211
	.750	.047	-.006	-.024	-.065	-.093	-.111	-.132	-.108	-.222
	.850	.020	-.034	-.057	-.105	-.130	-.150	-.169	-.138	-.245
	.925	.006	-.049	-.070	-.119	-.143	-.160	-.172	-.138	-.243
	a.975	.117	-.022	-.045	-.087	-.112	-.124	-.132	-.100	-.202
	a1.000	.170	-.125	.025	-.030	-.035	-.055	-.040	-.010	-.100

aFaired value.

Figure 1.- Schematic diagram showing method of measuring pressures.
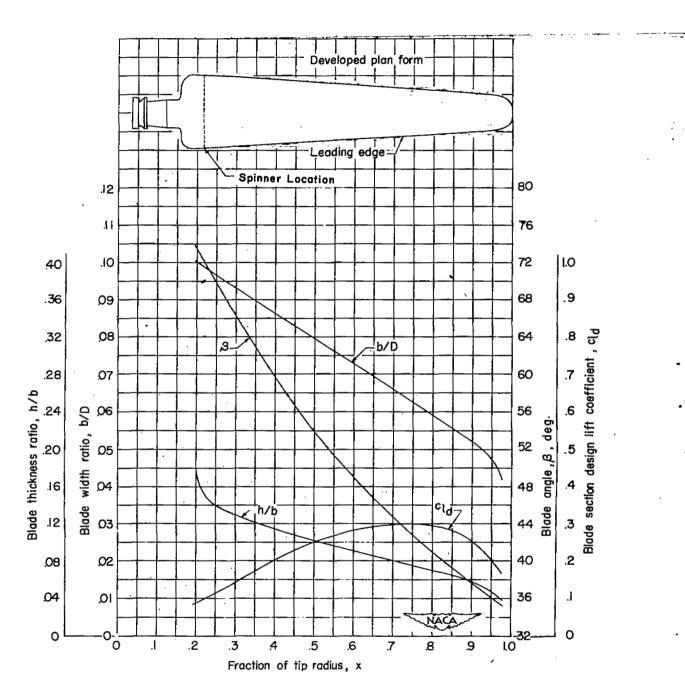
Figure 2.- Blade-form curves for NACA 10-(3)(08)-03 propeller.
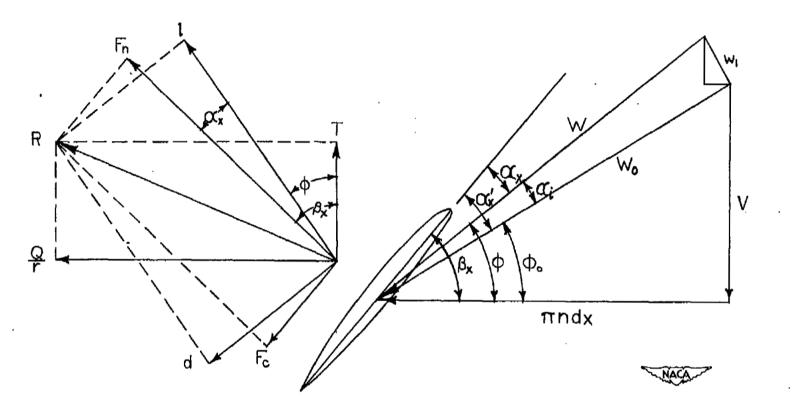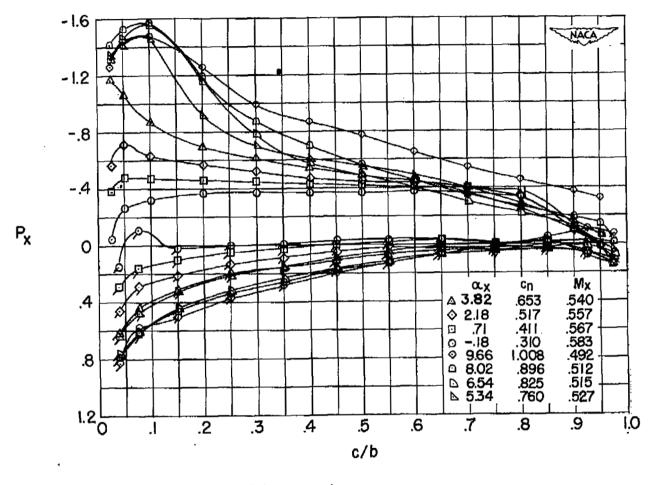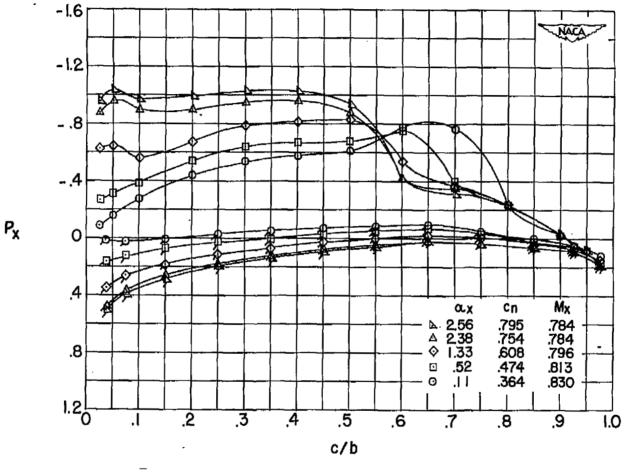
Figure 3.- Vector diagram of velocity and forces acting at a typical propeller blade section.

	α_x	c_n	M_x
△	3.82	.653	.540
◇	2.18	.517	.557
▢	.71	.411	.567
◉	-.18	.310	.583
◈	9.66	1.008	.492
⬡	8.02	.896	.512
▷	6.54	.825	.515
▷	5.34	.760	.527
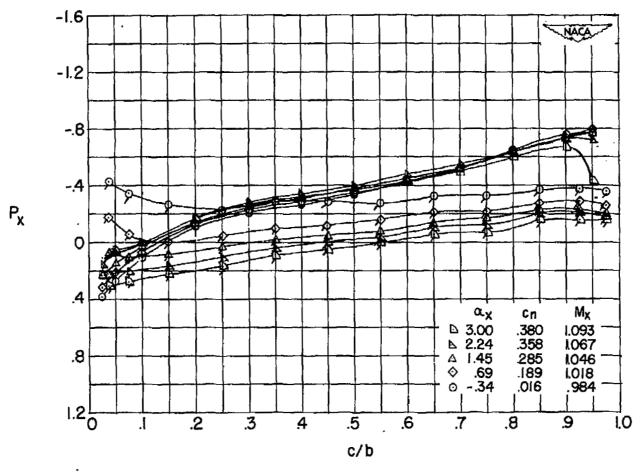
(a) $N = 1140$ rpm.

Figure 4.- Pressure distribution diagrams obtained at the $\dfrac{r}{R} = 0.80$ radial station at $\beta_{0.75R} = 45^\circ$.

	α_x	c_n	M_x
▷	2.56	.795	.784
△	2.38	.754	.784
◇	1.33	.608	.796
⊡	.52	.474	.813
⊙	.11	.364	.830
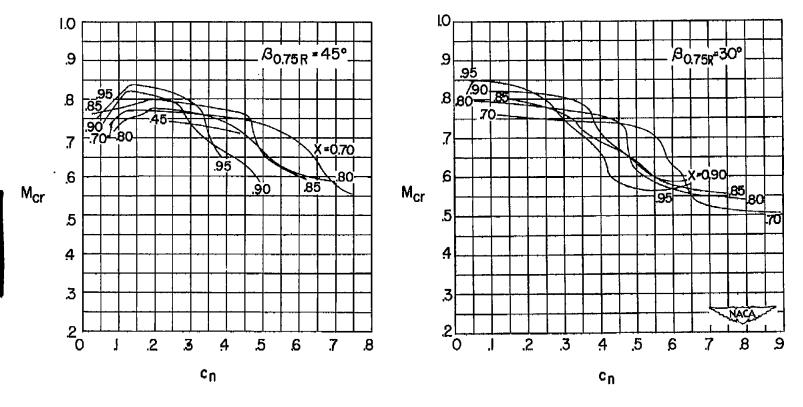
(b) N = 1600 rpm.

Figure 4.- Continued.
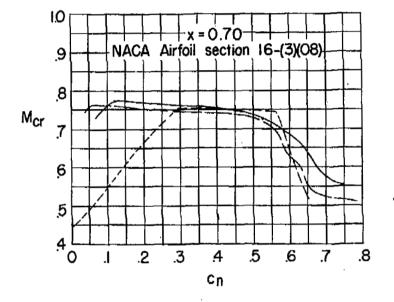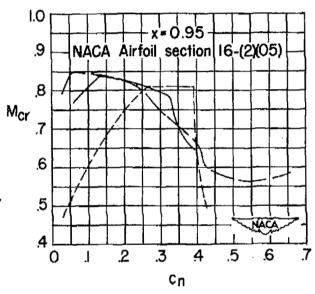
(c) Variable revolutions per minute; M = 0.65.

Figure 4.- Concluded.

(a) Experimental values determined from pressure measurements.

Figure 5.- Variation of section critical Mach number with section normal-force coefficient.

(b) Comparison of experimental values with theoretical calculated values.

Figure 5.- Concluded.
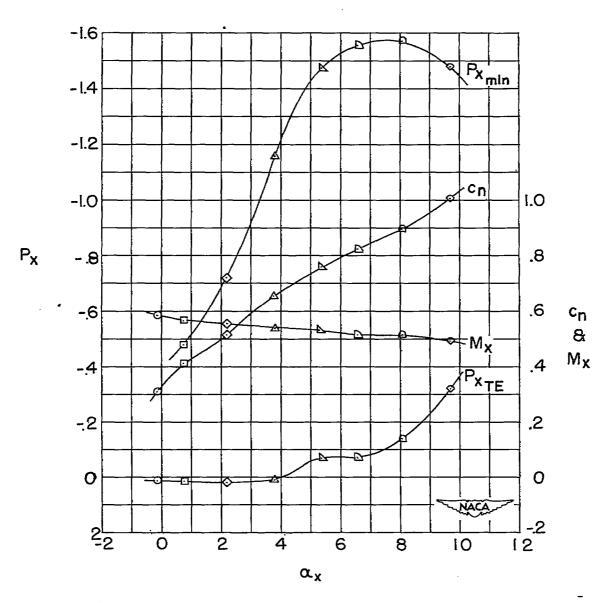
Figure 6.- Effect of angle of attack on a typical subsonic pressure distribution. $\frac{r}{R} = 0.80$; $\beta_{0.75R} = 45°$; $N = 1140$ rpm.
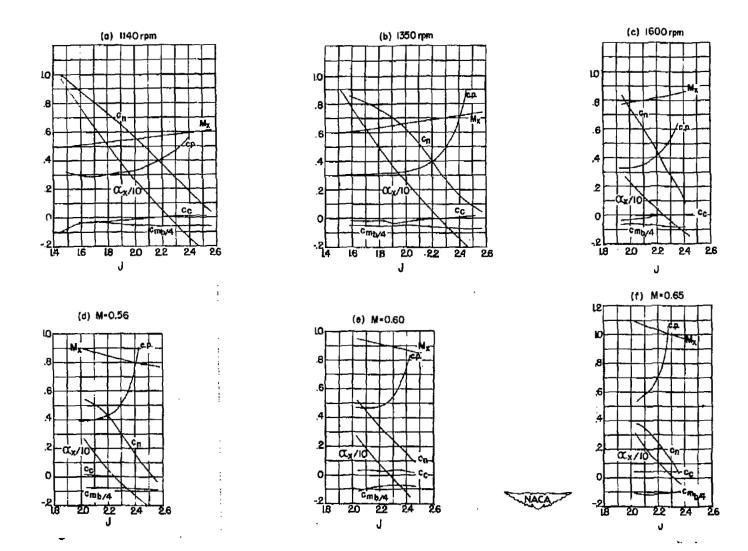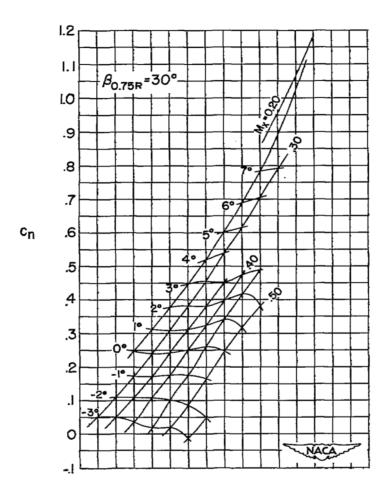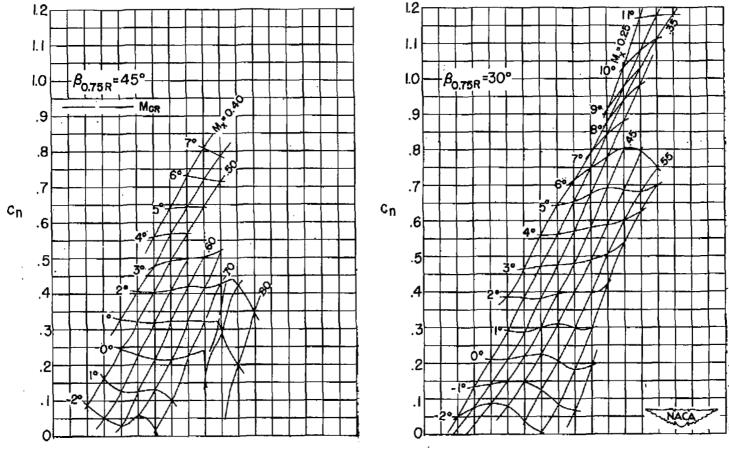
Figure 7.- Variation of section aerodynamic characteristics with propeller advance ratio. $\frac{r}{R} = 0.80$; $\beta_{0.75R} = 45°$.

(a) $\frac{r}{R} = 0.30$; NACA 16-(14)(13) airfoil section.
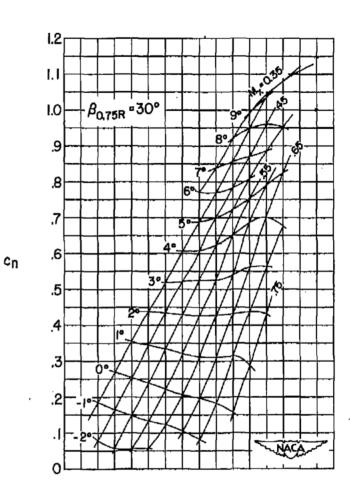
Figure 8.- Variation of section normal-force coefficient with angle of attack and Mach number for two propeller blade-angle settings.

(b) $\frac{r}{R} = 0.45$; NACA 16-(23)(11) airfoil section.
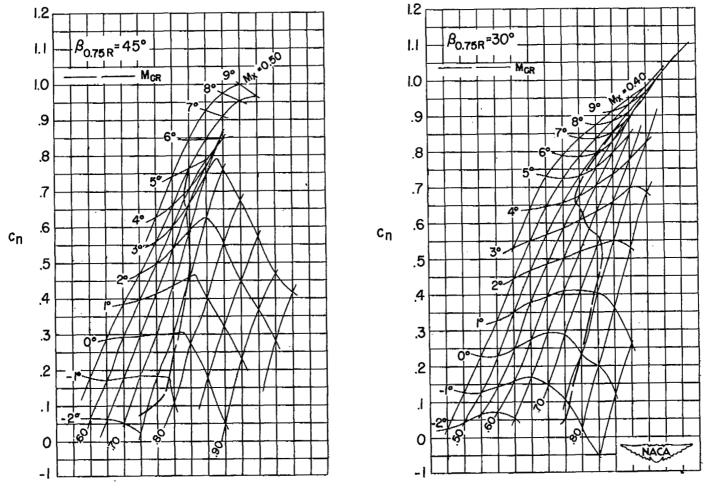
Figure 8.- Continued.

(c) $\frac{r}{R} = 0.60$; NACA 16-(28)(09) airfoil section.
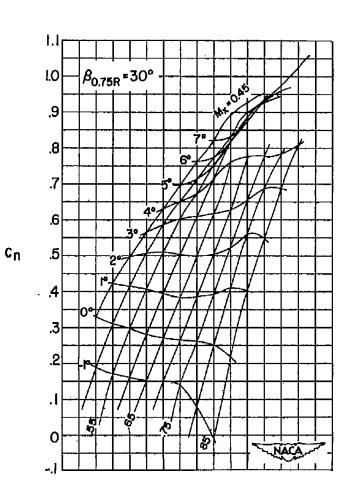
Figure 8.- Continued.
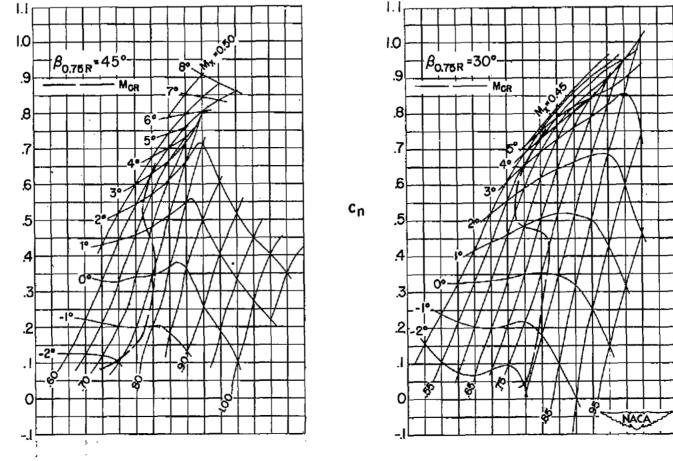
(d) $\frac{r}{R}$ = 0.70; NACA 16-(3)(08) airfoil section.

Figure 8.- Continued.

(e) $\frac{r}{R} = 0.75$; NACA 16-(3)(07) airfoil section.

Figure 8.- Continued.
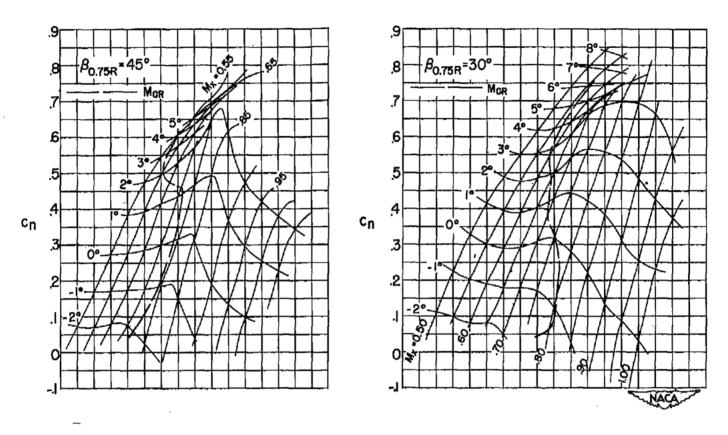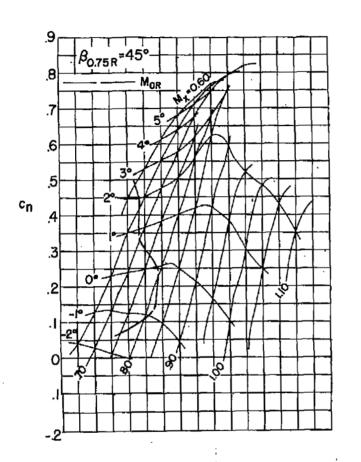
(f) $\frac{r}{R} = 0.80$; NACA 16-(3)(07) airfoil section.
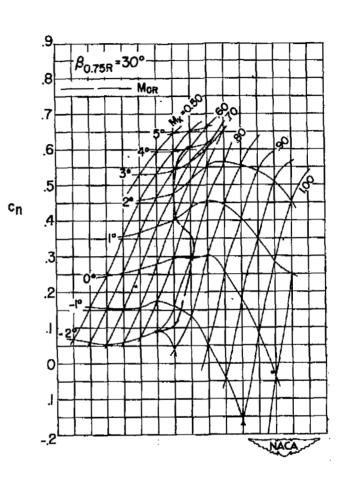
Figure 8.- Continued.

(g) $\frac{r}{R} = 0.85$; NACA 16-(28)(06) airfoil section.
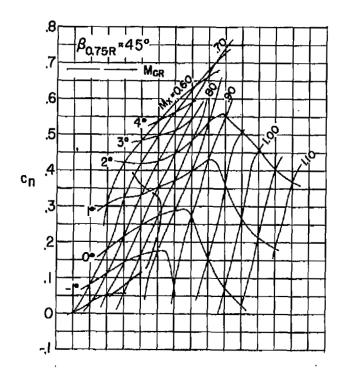
Figure 8.- Continued.
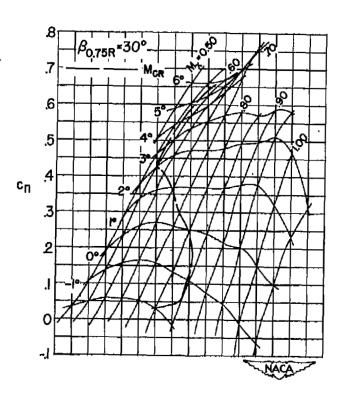
(h) $\frac{r}{R} = 0.90$; NACA 16-(25)(06) airfoil section.
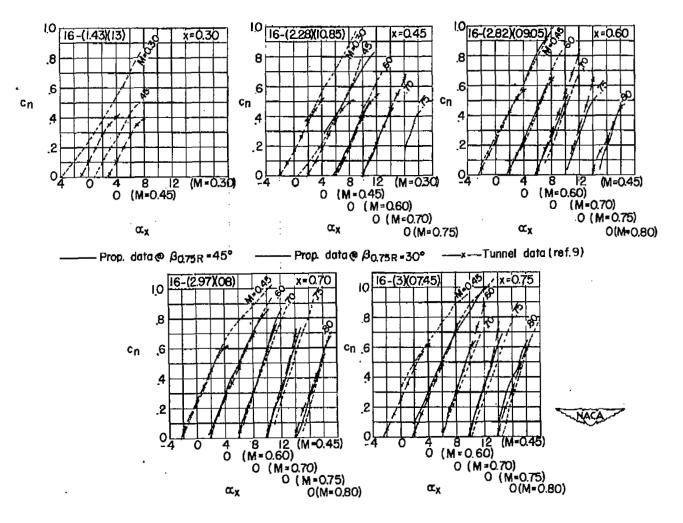
Figure 8.- Continued.
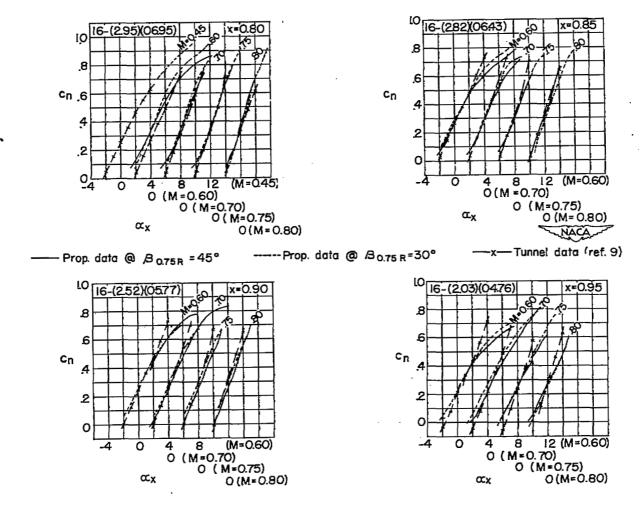
(1) $\frac{r}{R} = 0.95$; NACA 16-(2)(05) airfoil section.

Figure 8.- Concluded.
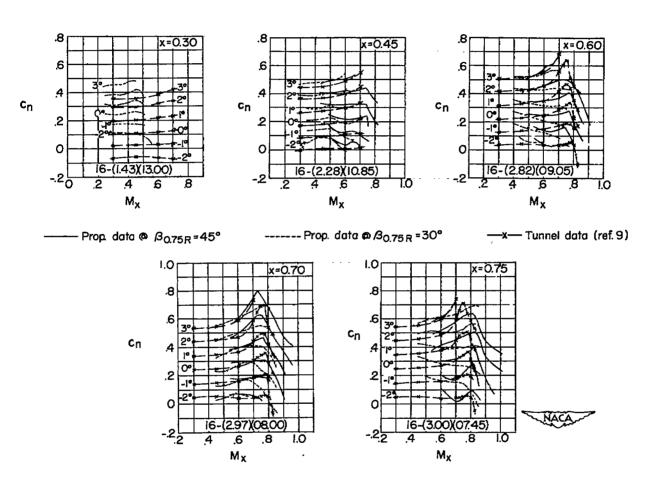
(a) Normal-force coefficient against angle of attack.

Figure 9.- Comparison of propeller section data with two-dimensional data.
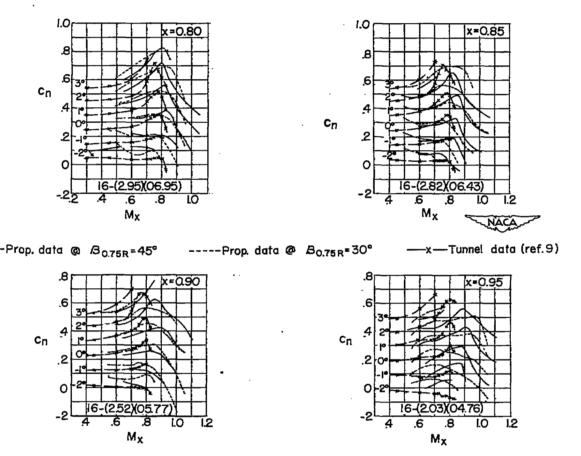
(a) Concluded.

Figure 9.- Continued.

(b) Normal-force coefficient against Mach number.

Figure 9.- Continued.

(b) Concluded.

Figure 9.- Concluded.

Error

An error occurred while processing this page. See the system log for more details.

(b) $\alpha'_{0.70R} = 1.97$.

Figure 10.- Concluded.

—————— Critical Mach No.

— — — — Mach No. of Lift Divergence
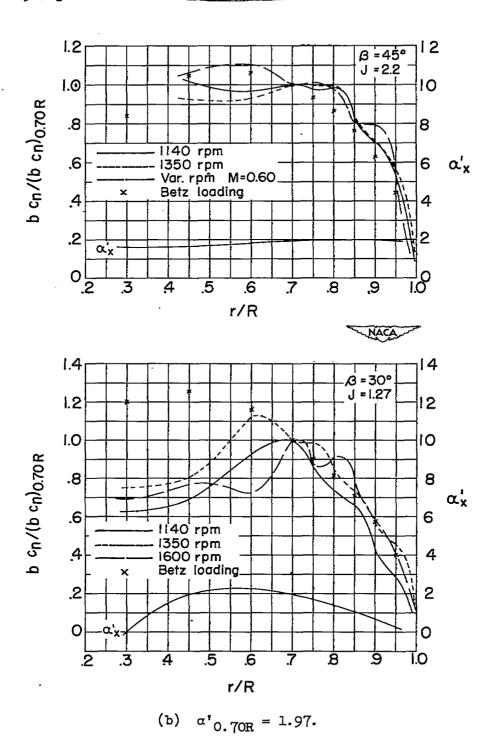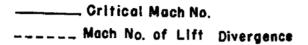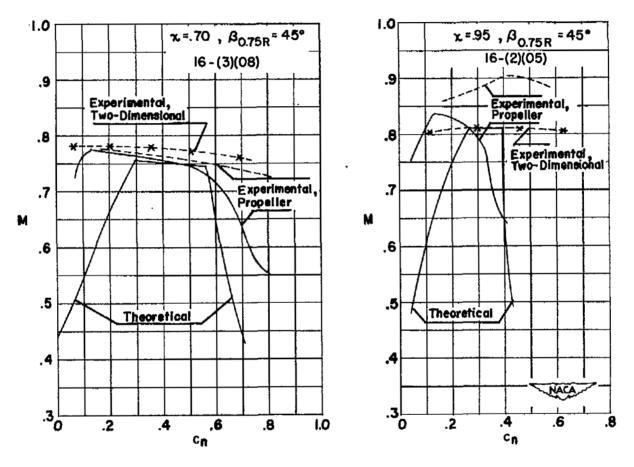
Figure 11.- Comparison of critical Mach number and Mach number for lift
divergence from propeller tests with theoretical critical Mach number
and two-dimensional lift-divergence Mach number.

$\beta_{0.75R} = 45°$
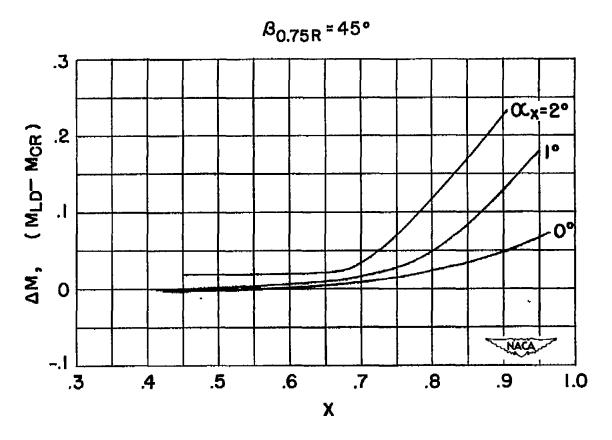
Figure 12.- Variation of the difference between critical Mach number and
Mach number for lift divergence with radial station.

(a) $\beta_{0.75R} = 30°$.
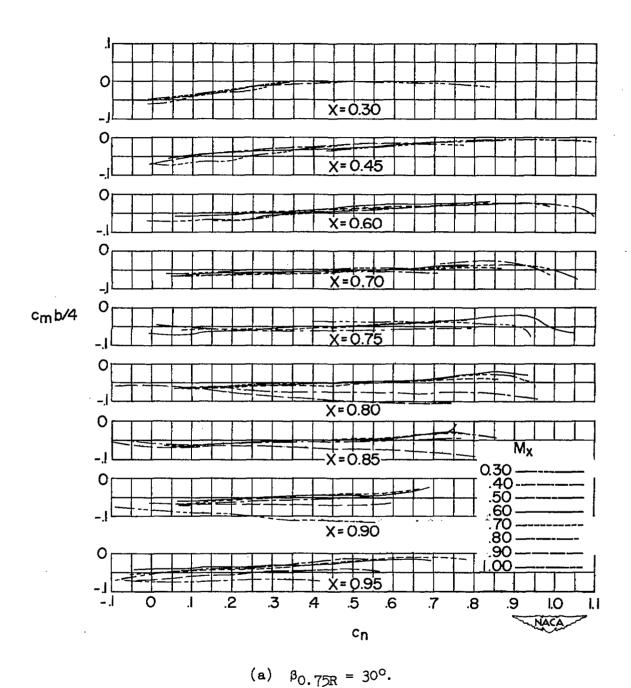
Figure 13.- Variation of section moment coefficient about the quarter-chord point with section normal-force coefficient.

(b) $\beta_{0.75R} = 45^{o}$.
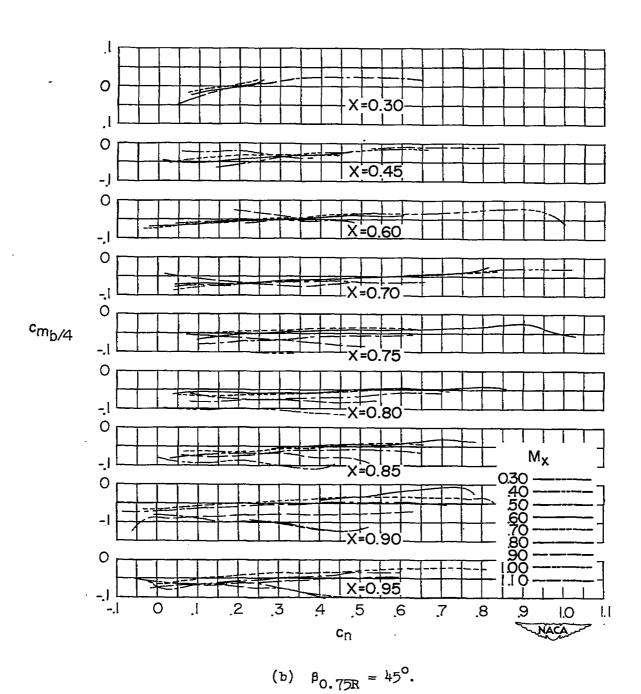
Figure 13.- Concluded.

(a) $\beta_{0.75R} = 30^\circ$.
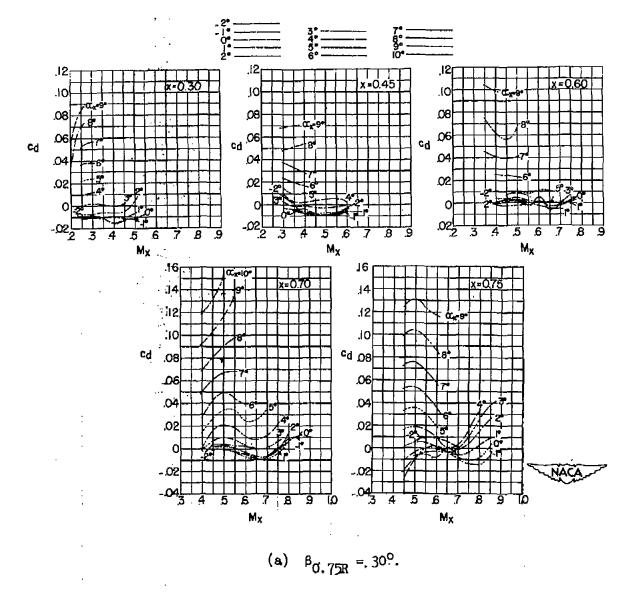
Figure 14.- Variation of section pressure drag coefficient with section Mach number.
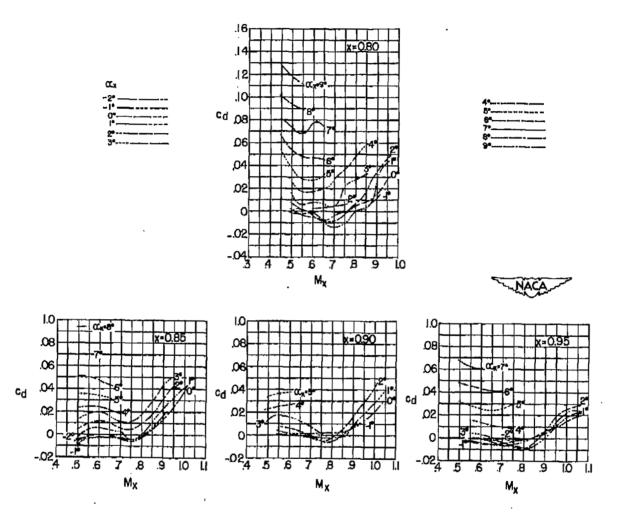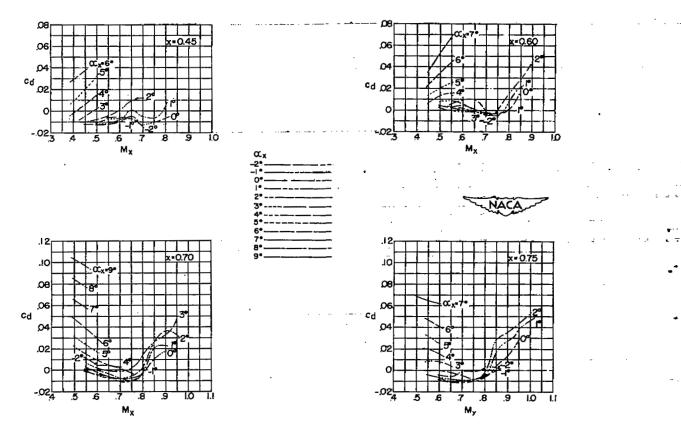
(a) Concluded.

Figure 14.- Continued.

(b) $\beta_{0.75R} = 45°$.

Figure 14.- Continued.

(b) Concluded.
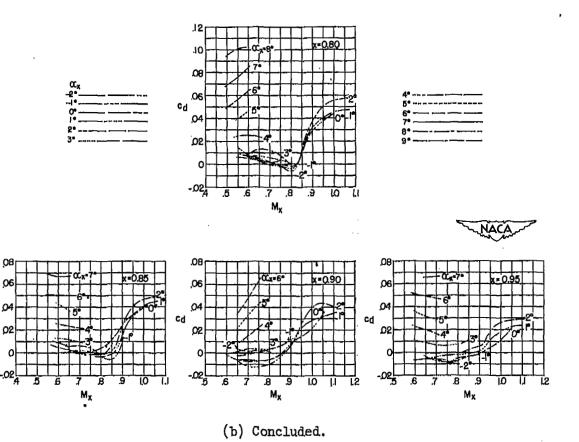
Figure 14.- Concluded.
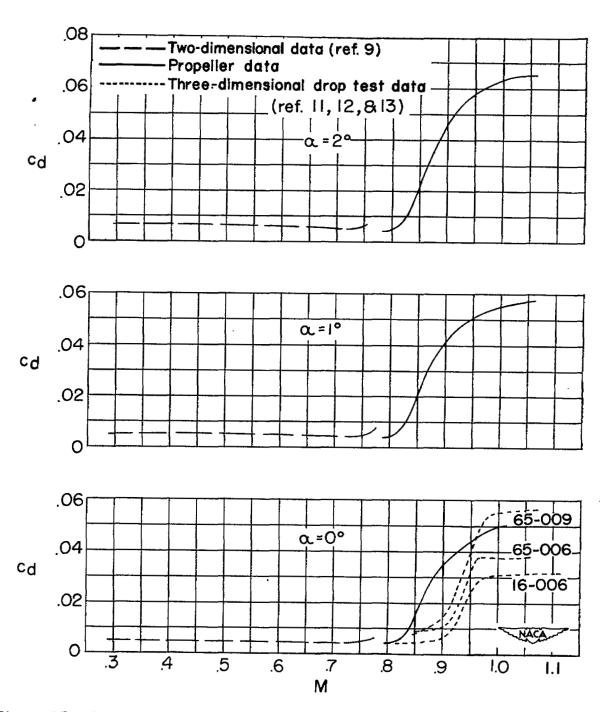
Figure 15.- Section total drag coefficient as determined by comparison with two-dimensional model data. $\frac{r}{R} = 0.80$; $\beta_{0.75R} = 45°$; NACA 16-(3)(07) airfoil section.
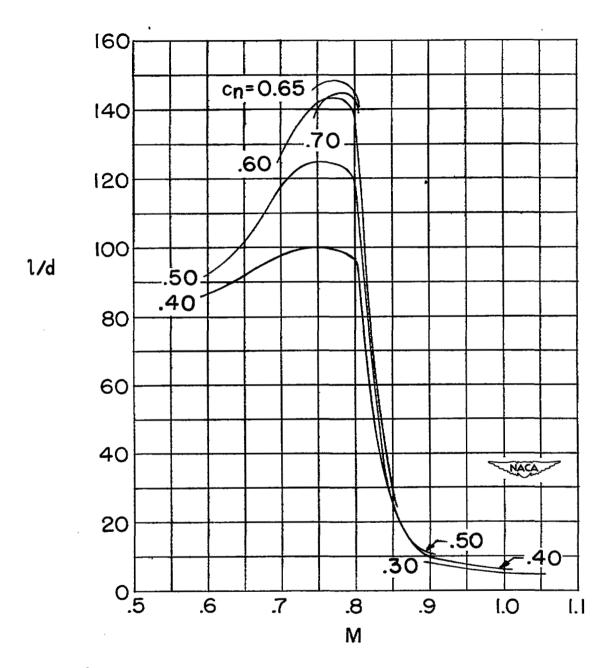
Figure 16 - Variation of section lift-drag ratio with section Mach number as determined from the drag curves of figure 15. $\frac{r}{R} = 0.80$; $\beta_{0.75R} = 45°$; NACA 16-(3)(07) airfoil section.

Thrust coefficient obtained from surface pressure measurements, C_{T_p}'
Thrust coefficient obtained from wake pressure measurements, C_{T_w}'

(a)   N = 1140 rpm; $\beta_{0.75R}$ = 30°.
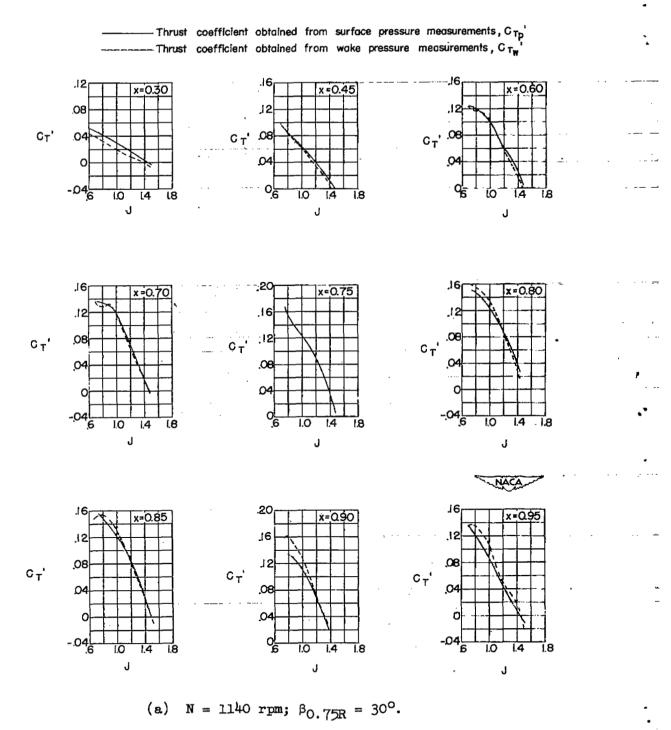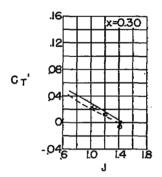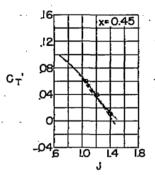
Figure 17.- Comparison of section thrust coefficient as determined by the surface-pressure measurements and wake-pressure measurements.
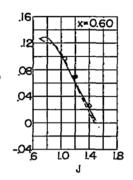
Thrust coefficient obtained from surface pressure measurements, C_{T_P}'
------ Thrust coefficient obtained from wake pressure measurements, C_{T_W}'
o   Computed from tunnel data of ref. 8
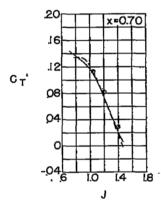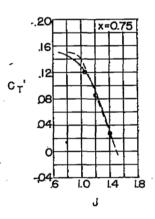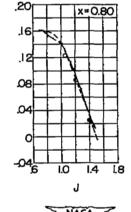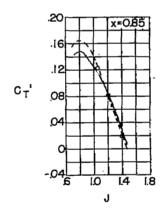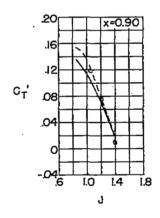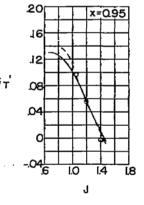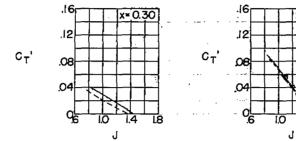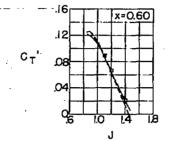
(b)   N = 1350 rpm; $\beta_{0.75R} = 30°$.
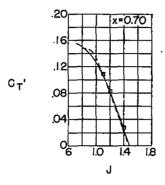
Figure 17.- Continued.
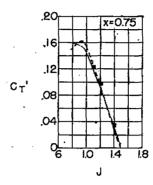
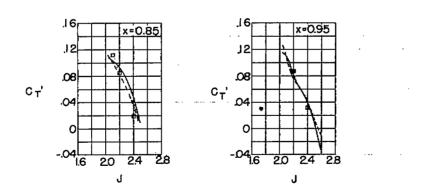———— Thrust coefficient obtained from surface pressure measurements, C_{T_P}'
------- Thrust coefficient obtained from wake pressure measurements, C_{T_W}'
  □ C_{T_P}' computed from data   obtained at $\beta_{0.75} = 45°$
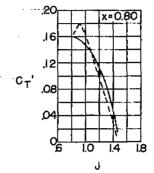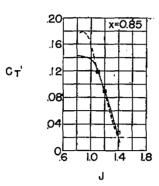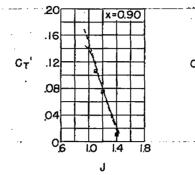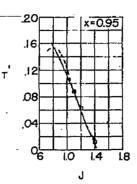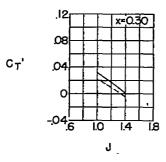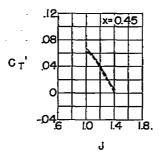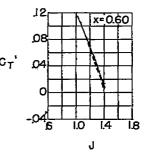
(c)   N = 1600 rpm; $\beta_{0.75R} = 30°$.
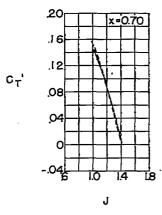
Figure 17.- Continued.
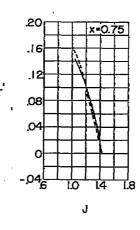
—————— Thrust coefficient obtained from surface pressure measurements, C_{T_p}'

------ Thrust coefficient obtained from wake pressure measurements, C_{T_w}'

(d)   N = 2000 rpm; $\beta_{0.75R} = 30°$.

Figure 17.- Continued.

———— Thrust coefficient obtained from surface pressure measurements, C_{T_p}'
-------- Thrust coefficient obtained from wake pressure measurements, C_{T_w}'
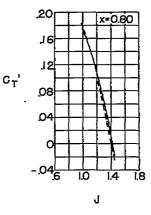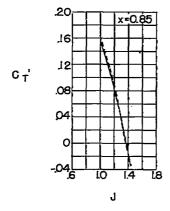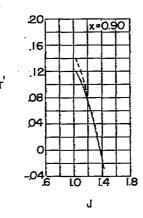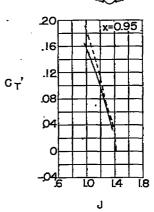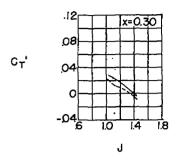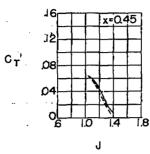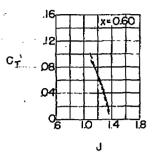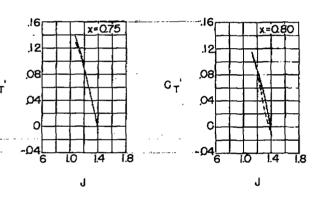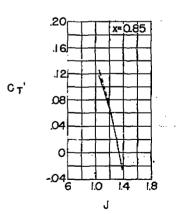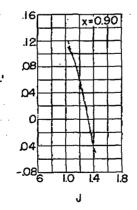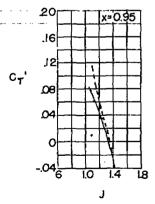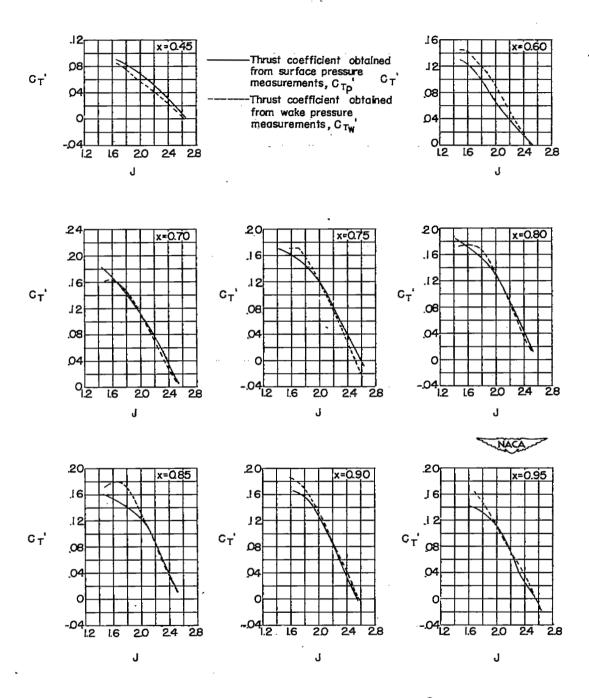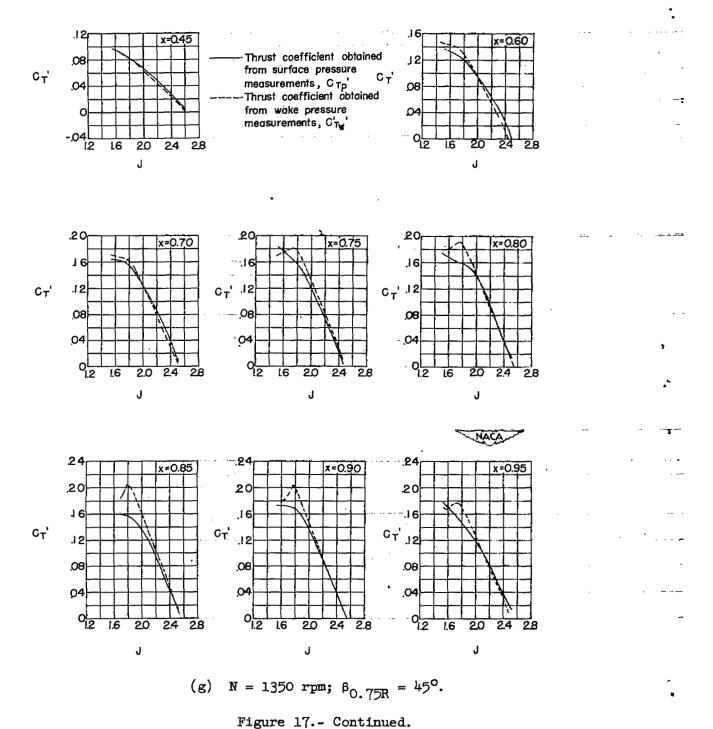
(e)   N = 2160 rpm; $\beta_{0.75R}$ = 30°.

Figure 17.- Continued.

(f)   N = 1140 rpm; $\beta_{0.75R}$ = 45°.

Figure 17.- Continued.

(g)　N = 1350 rpm; $\beta_{0.75R} = 45°$.

Figure 17.- Continued.

(h) N = 1600 rpm; $\beta_{0.75R}$ = 45°.

Figure 17.- Continued.

Thrust coefficient obtained from surface pressure measurements, C_{T_P}'
------ Thrust coefficient obtained from wake pressure measurements, C_{T_W}'
□ C_{T_P}' computed from data obtained at $\beta_{0.75} = 30°$
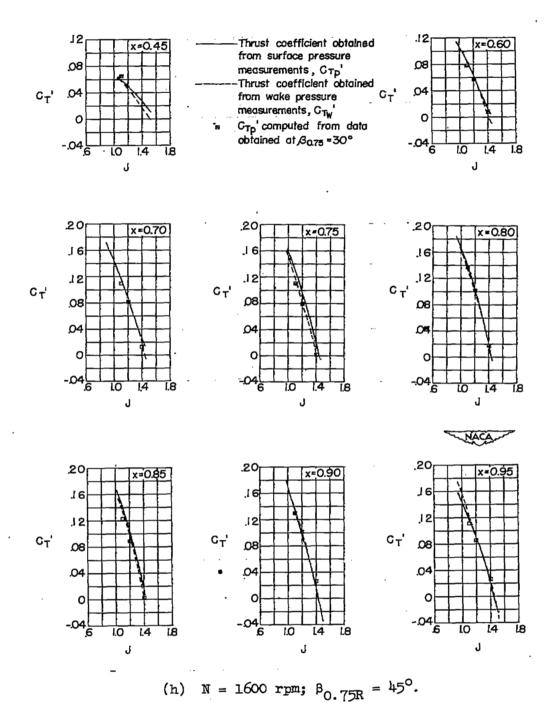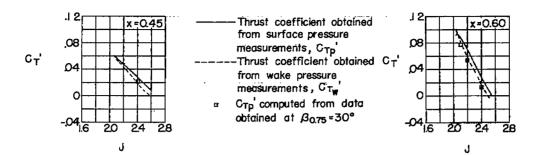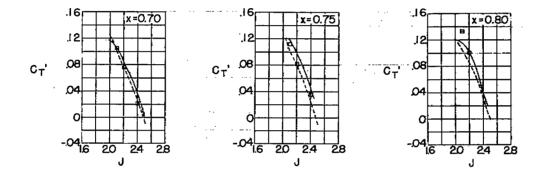
(i) $M = 0.56$; $\beta_{0.75R} = 45°$.
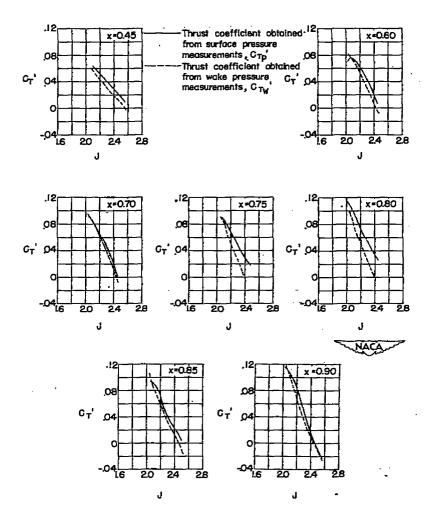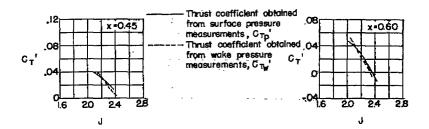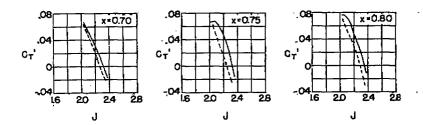
Figure 17.- Continued.

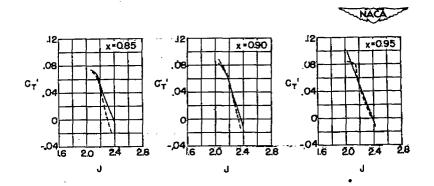(j)   M = 0.60; $\beta_{0.75R} = 45°$.

Figure 17.- Continued.

Thrust coefficient obtained from surface pressure measurements, C_{Tp}'

Thrust coefficient obtained from wake pressure measurements, C_{Tw}'

(k) $M = 0.65$; $\beta_{0.75R} = 45°$.

Figure 17.- Concluded.